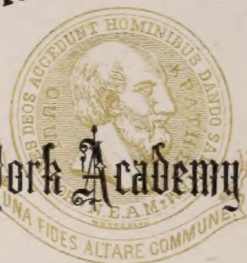


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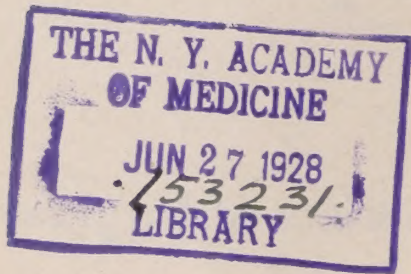
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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 54, No. 1.
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THE PHYSIOLOGY OF THE LIVER.*

By FRANK C. MANN, M. D., Rochester, Minnesota.

Division of Experimental Surgery and Pathology,
The Mayo Foundation.

The functions of the liver are too numerous, too varied, and too important to attempt a comprehensive discussion of them in a single paper, and rather than present an incomplete general review of the physiology of this great organ, I shall discuss those phases of its function which appear to be of the most importance to clinical medicine, and also those which bear some relation to the phases to be discussed in this symposium.

In order to appreciate fully the functional significance of the liver a few facts concerning its anatomy are essential. One of the most important anatomic considerations is its double blood supply, arterial and venous. Arterial blood enters the liver under the pressure in the arterial system and the outflow through the gland is under the control of the intra-hepatic vasomotor system; this portion of the hepatic blood supply is similar to that of other organs. On the other hand, the blood entering the liver through the portal vein is under low pressure, as found in the venous system, and the amount is controlled mainly by the vasomotor mechanism of the vascular areas forming the portal system. The liver is unique among organs in that the control of by far the largest amount of blood flowing through it resides in a vascular area outside the organ.

Another anatomic detail of the liver which is of great physiologic significance is the organization of the unit of the liver on a dual basis. The duct system is emphasized from one standpoint, while the minutia of its circulation is emphasized from another standpoint. However, anatomically the latter appears the more important, which suggests that, for the most part, the activity of the liver is associated with an exchange of substances carried to the organ and discharged from it into the blood.

The liver should also be considered anatomically and physiologically as composed of

two organs. The cellular component of the liver which is responsible for most of its specific activities is the hepatic cell. This characteristic histologic unit is not found elsewhere in the body and on it depend the manifold functions of the liver with regard to the secretion of the bile, the specific activities of the organ in various phases of metabolism, and so forth. On the other hand, partially lining the blood spaces surrounding the trabeculae of hepatic cells are other characteristic cells, the so-called stellate cells, which have entirely different functions from the hepatic cells and are seemingly similar to cells found in other organs such as the spleen and the bone marrow. The stellate cells function as macrophages and are thus of importance in removing foreign material from the blood stream and in many other similar activities.

The function of the liver which thus far has apparently played the principal role in clinical medicine is secretion of bile, because of the relation of this product of the liver to many clinical conditions, such as jaundice and disease of the biliary apparatus. However, it is probable that other functions are really of more clinical significance, although present knowledge concerning them is too limited to determine this point.

Among the many constituents of the bile three are outstanding, namely, the bile salts, cholesterol and bilirubin. Data concerning the relation of the two former substances to hepatic function are very incomplete. Evidence seems to show that the bile acids are made in the liver, although this has not been proved. Neither are the substances from which the acids are made definitely known, nor if they are of more physiologic importance than as an agent to digest fat. In this connection it should be noted that the bile salts are the only true cholagogues. Definite facts concerning the role of the liver in cholesterol metabolism are too few to warrant this discussion, and this point, as well as others on the subject, awaits further investigation.

Considerably more is known of bilirubin than of the other important constituents of the

*Read by invitation as part of the symposium on The Liver before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

bile. In the past it was generally accepted that this pigment is made in the liver, but it has been proved that while a small amount forms in the liver, most of it forms in the bone marrow and spleen. It is probable that the hepatic cell does not make bilirubin but is only the agent in its excretion from the blood. It is obvious that this conception of the function of the liver in relation to this important constituent of bile is of great significance with regard to the clinical conditions of jaundice.

As our knowledge of carbohydrate metabolism has advanced since the discovery of glycogen and its storage in the liver, so the physiologic importance of the liver has advanced. The higher forms of organisms, such as man, require a readily available source of energy which will permit a wide and varying range of intensity of physiologic activity. The food to supply such energy must be naturally abundant, easily assimilated, readily stored in the body as well as readily transported to the tissues, and when utilized, must yield energy for the work of the cells and the production of heat, with a minimum of easily and quickly eliminated combustion by-products. Carbohydrates admirably fill these requirements. They are the most common of foodstuffs and are readily obtained. In general they are easily digested. They are absorbed in the form of glucose, which is carried by the blood to the tissues where it is burned, producing energy for work and heat. Of waste products the residue of the combustion, water and carbon dioxide, are the most easily eliminated; in the form of glycogen it can be stored in the liver and muscles.

However, the needs of the organism for this source of energy vary greatly, depending on whether the body is at rest or undergoing physical exertion. Many times more glucose is needed in the latter condition than in the former. If there were no means of regulating the amount of glucose reaching the tissues, the supply would fluctuate greatly, depending on the state of bodily activity, ingestion, and so forth, and there would be plethora during the time of absorption from the alimentary tract and deficiency between periods of feeding. During physical exertion the supply might be exhausted, and at rest the organism might be flooded with glucose; in the latter condition much of the glucose would be lost in the urine. It can readily be understood that in order to insure an available supply of glucose to the

tissues at all times under the varying conditions of ingestion and utilization, a regulatory mechanism is absolutely essential. The liver is the organ which maintains this regulatory mechanism.

The importance of the liver in maintaining the concentration of sugar in the blood has been determined by a study of the effect of its removal on the blood-sugar level. Immediately after removal of the liver the blood-sugar level begins to lower progressively. When it reaches a certain rather definite level a characteristic, definite group of symptoms appears; they usually occur in an order which parallels the decrease in concentration of sugar in the blood. If glucose is injected in proper amounts when the animal is moribund and the blood sugar is low, the animal immediately becomes normal. If glucose is administered before the blood sugar has decreased to a low level, the characteristic symptoms associated with the hypoglycemia do not appear. These results prove that the liver maintains the normal blood-sugar level, that a certain concentration of glucose in the blood is essential to life, and that by the proper administration of glucose a rough approximation can be made of the activity of the liver in maintaining the blood-sugar level.

The liver not only is essential for the maintenance of the normal blood-sugar level, but it is also responsible for all the increase other than that due to the ingestion of carbohydrate. For instance, when the pancreas is removed from a dog, the blood sugar increases and the animal becomes diabetic. If the liver is removed when the blood sugar is high following pancreatectomy, it immediately decreases and the usual hypoglycemic symptoms appear, but this occurs at a higher blood-sugar level than in the normal animal. In the normal animal, whose liver contains glycogen, some procedures, such as asphyxia, anesthesia and the administration of certain drugs, such as epinephrin, will cause transitory hyperglycemia. This increase in blood sugar will not occur after the liver has been removed.

The amount of glycogen in the body of the normal animal is about equally distributed in the liver and muscles. When the liver is removed, the glycogen of the muscle decreases but the animal will die in a condition of hypoglycemia, while if the glycogen in the muscles were available to maintain the sugar in the blood, life would be sustained for a consider-

able period. No evidence has been obtained to show that the glycogen of the muscle is utilized for maintaining the blood-sugar level and if any is thus utilized, it is entirely inadequate to keep the blood sugar at the necessary level.

While the importance of the liver in regulating the concentration of sugar in the blood has been amply proved, the mechanism involved is not known. One of the most interesting unsolved problems in relation to the physiology of the liver is the manner in which it maintains the level of blood sugar so constantly within narrow limits.

Since the liver has such a responsible position in maintaining the blood-sugar level, it is not surprising to find that it also has a very important function in protein metabolism, particularly with that portion of the ingested protein which is utilized as carbohydrate. Only a part of the protein food ingested is used as such, and the remaining portion must be utilized otherwise. Most of the latter portion is deaminized, the nitrogenous by-product excreted as urea, and the remaining protein converted to glucose. The liver is essential for this process and the blood-sugar level is maintained, in the absence of available carbohydrate, by making glucose from protein. The fact that the liver is necessary for the formation of urea has been demonstrated in many ways but most conclusively by a study of the nitrogenous constituents of the blood and urine of an animal whose liver has been removed. If the liver and kidneys are removed from a dog simultaneously, the urea content of the blood remains the same or falls slightly below its preoperative level. The decrease is due to the loss of urea in saliva and other secretions of the alimentary tract. If the secretion of urine is maintained after removal of the liver, the amount of urea in the blood, tissues and urine decreases and the animal may become almost urea free. If the kidneys are removed, and some time later, after the blood urea has greatly increased due to retention, the liver is removed, no further increase in the urea of the blood occurs. There is a progressive increase in the amino-acid content of the blood following removal of the liver and injection of amino acids in the dehepatized animal is not followed by an increase of urea. These experiments demonstrate that the formation of urea depends on the liver.

The liver is also of importance in another

phase of protein metabolism, that relative to the purines. Another important nitrogenous by-product, besides urea, is uric acid. In some species of animals almost all the nitrogen is excreted as uric acid, while in other species little is excreted in this form. The dog belongs to the latter group. Normally there is only a trace of uric acid in his blood and very little is excreted in the urine. However, after the liver has been removed, uric acid appears in the blood and large amounts are excreted in the urine. When uric acid is injected into the normal dog it is quickly destroyed, but when it is injected in the dehepatized dog, it remains unchanged in the blood and tissues or is excreted in the urine. These experiments demonstrate that the dehepatized animal cannot destroy uric acid. What bearing this fact may have in a consideration of the function of the liver of man cannot as yet be determined, since normally much of the uric acid is not destroyed in the human being. On the other hand, the ability of the dog's liver to destroy uric acid appears to be more easily injured than any of the other known functions of the organ.

Among the unsolved problems concerning the activity of the liver is the relation of this organ to fat metabolism. It is not as yet known whether the liver is of any great significance in fat metabolism. It has been suggested that the liver prepares the fat for oxidation, but the evidence concerning this is rather meager. It has also been suggested that the liver changes fats into carbohydrates. However, such a transference of foodstuffs has not been conclusively demonstrated. If it does occur, in view of the predominant position of the organ in carbohydrate metabolism, it would not be unreasonable to believe it a part of such a process also. The most conclusive evidence of a relation of the liver to fat metabolism is found in the reciprocal relation of the fat and glycogen content of the organ. In fasting and other conditions in which the glycogen content of the liver decreases, the fat content increases, a further suggestion that the liver has something to do with the metabolism of fat.

It is frequently stated that the liver is a detoxicating organ, that it protects the remaining portion of the body from toxic substances which enter the blood, by destroying their toxicity and making them harmless. The interpolation of the liver between the general

and the portal circulation whereby the portal blood containing the products of absorption from the gastro-intestinal tract must pass through the liver before reaching the remaining portion of the body, would appear to form an anatomic basis for this theory. There is no question that the liver greatly alters many of the substances reaching it, and it must also be accepted that some of these substances are converted from a potentially toxic to a non-toxic state. However, it is difficult to prove that the liver has an important function as a specific detoxicating organ. Certain poisons, as chloroform and phosphorus, injure the liver more than any other organ of the body. This might be interpreted as a protective action of the liver in which it becomes injured in protecting the rest of the body. Some toxic substances produce a much greater reaction in an animal whose liver has been removed. While the liver in a certain sense is a detoxicating organ for certain soluble toxic substances, its function in this respect is probably usually indirect.

On the other hand, the liver is active in removing foreign particles such as bacteria and colloid material from the blood stream. The special agent in this activity appears to be the stellate cells and not the hepatic cells. It is not surprising, in view of this function of the stellate cells, to find that there is considerable evidence also that the liver is of great significance in the formation of opsonin, in the destruction of foreign bodies, in anaphylaxis, and other similar phenomena.

In any consideration of the physiology of the liver, the extra-hepatic biliary tract should not be ignored. While this portion of the liver is insignificant as compared with the remainder of the organ in reference to physiologic activity, it is of great significance clinically because it is so often and so disastrously affected by disease and because present methods of treatment have been so effective.

The extra-hepatic biliary tract of most species of animals, including man, consists of the hepatic ducts, common bile duct, cystic duct and gall-bladder. Of course, the structure of major importance clinically is the gall-bladder. In reference to this it should be emphasized, that the gall-bladder is of physiologic significance, and that it empties its contents through the cystic duct into the duodenum by means of the contraction of its own intrinsic musculature.

That the gall-bladder is of some functional significance is proved by the fact that its removal is usually followed by a dilatation of the extra-hepatic biliary tract; it is capable of greatly concentrating the bile which enters it, and its presence prevents the development of jaundice for many hours after obstruction of the common bile duct. These facts can only be explained on the basis that the gall-bladder actually functions in the organism.

The method of emptying the gall-bladder has been determined by the observation of the exposed viscus under a local anesthetic following a meal of fat administered to a normal animal. The gall-bladder empties, but will not empty if the animal is under a general anesthetic. When it is exposed properly under a local anesthetic, the mechanism is not disturbed and the gall-bladder can actually be seen to empty by slow tonic contraction. The contents are forced through the cystic duct into the duodenum. In this connection it might be well to emphasize a rather misunderstood point with regard to the biliary apparatus. The sphincter at the end of the common bile duct is an anatomic and physiologic reality. Its function is not to prevent the gall-bladder from emptying but to cause it to fill. While changes in intra-abdominal pressure in relation to respiratory movements may have some influence on the emptying of the gall-bladder, particularly if the organ is distended, the most important factor in emptying is its own musculature. While changes in tone of the musculature of the duodenal wall may be of some value in regulating the flow of bile, the sphincter at the end of the choledochus is the chief factor since it directs the bile into the gall-bladder instead of into the duodenum.

While there can be no question that the gall-bladder is of considerable significance physiologically, numerous experiments on animals and operations on man have shown that compensation for its removal is quickly effected. Its various physiologic activities also appear to be very easily injured. Its power of concentrating its bile appears to be more easily injured than its ability to empty. The ease with which the physiologic activity appears to be affected by disease is an important factor in reference to cholecystectomy.

Two physiologic characteristics of the liver should be taken into consideration clinically: (1) its great power to regenerate after injury or surgical removal, and (2) the small amount

of tissue necessary to maintain its known functions. The liver may be very severely injured by such hepatic poisons as chloroform or phosphorus, but recovery may be rapid and complete. The liver of a normal dog will regenerate to its normal weight within a few weeks after 70 per cent of it has been removed. The known functions will be maintained with 15 to 20 per cent of the organ. These facts are worthy of consideration in testing hepatic function.

The chief known functions of the liver have been presented briefly; undoubtedly it has many other functions although but little is known of these. The liver has some influence on the coagulation of the blood, although the exact nature of it is not fully known. The liver also seems to have something to do with the regulation of the circulatory fluid of the body; in fact, it appears to have many as yet little understood functions which have to do with the general well-being of the organism. It is possible that much of the patient's ability to resist disease successfully or to withstand operation, depends directly or indirectly on the liver, and certain observations suggest that it plays a role in malignancy.

Even this brief review of some of the known functions of the liver seems to show that the physiologic significance of the liver can hardly be over-estimated. There is scarcely a vital physiologic process occurring in the body in which this great organ is not directly or indirectly involved. That the liver has hitherto not been considered of more importance clinically is probably owing to its great power to regenerate and to compensate physiologically after injury, and to lack of knowledge of many of its functions. It is probable that a solution of some of the problems concerning the functions of the liver will also solve some of the important and obscure clinical problems. This field for experimental and clinical research is both large and enticing.

LIVER FUNCTION FROM THE STAND- POINT OF DIAGNOSIS.*

By WALTER B. MARTIN, B. S., M. D., Norfolk, Va.

The study of the functional capacity of an organ is an important phase of the development of our knowledge of the initiation and progress of disease. As practicing physicians, we are constantly confronted with the prob-

lems of living pathology, and we are eager to utilize any method that will aid in diagnosis, prognosis or treatment.

The evolvement of reasonably accurate methods of studying renal function has greatly extended our knowledge of kidney disease, and has enabled us to more accurately evaluate the extent of injury existing in the living kidney. The estimation of liver function presents a much more difficult problem on account of the manifold activities of the liver, and its apparently great reserve. Extensive injury can exist in the liver without being reflected in a detectable loss of function.

Numerous methods of determining liver function have been proposed, founded on different known or supposed activities of that organ. Strauss¹ introduced a test based on the glycogenic function of the liver, using levulose as the agent. According to his method, 100 grams of this sugar is introduced into the fasting stomach, and examinations of the urine for sugar are made at intervals during the next few hours. The presence of sugar in the urine under these conditions is supposed to indicate a lowered liver function. Bauer² advocated the use of 30 grams of galactose as a substitute for levulose, his method being otherwise essentially the same as that of Strauss. These methods at best are only qualitative, and do not assume to estimate the degree of liver dysfunction. Since the introduction of accurate methods of determining blood sugar, Strauss' original method has been modified, and the blood sugar curve has been studied after the ingestion of measured quantities of various sugars. Bodanski³ in a series of careful experiments on dogs estimated their tolerance for levulose, glucose and galactose. Levulose caused the least rise in blood sugar, but he found a marked fall in the animal's tolerance for this sugar after toxic injury to the liver. Goodpasture⁴ demonstrated the presence of a fibrinolytic ferment in certain cases of cirrhosis of the liver, and suggested a test of liver function based on the detection of the presence of this ferment. Abel and Rowntree⁵ while looking for an intravenous cathartic found that phenoltetrachlorophthalein injected intravenously is excreted almost altogether by the liver. Four years later, Rowntree, Hurwitz and Bloomfield,⁶ and Whipple, Mason and Peighthal⁷ described a method of determining liver function by estimating the amount of dye recovered from a forty-eight hour collection

*Read as part of the symposium on Diseases of the Liver before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

of the stools, following its intravenous injection. In 1914, Chesney, Marshall and Rowntree⁸ made a complete study of the methods suggested up to that time, i. e., nitrogen partition of the blood, phenoltetrachlorophthalein excretion in the stool, the levulose and galactose tolerance test, Goodpasture's fibrinolytic ferment test, variations in the urobilin output in the urine, and the lipase and fibrinogen tests of Whipple. Brule⁹, by ultra microscopic examinations of fresh blood after a meal high in fat, demonstrated a variation in the number of fine particles (hemoconia) showing rapid Brownian movement. He considered a decrease in the number of these particles indicative of a decreased liver function. Widal, Abrami and Iancovescu¹⁰ described their so-called hemoclastic crisis test and attributed the phenomena noted to changes in the liver, especially its proteopexic function. According to their method, initial observations are made on a fasting patient, of blood pressure, coagulation time, leucocyte count and refractive index of the blood. Following the ingestion of 200 c.c. of milk, similar observations are made at frequent intervals for several hours. A decrease in blood pressure, leucocyte count and refractive index, with an increase in the coagulability of the blood is considered a positive reaction. The majority of investigators have not confirmed the findings of Widal and his co-workers, and the conclusion seems justified that other factors than liver deficiency are concerned in the production of the hemoclastic crisis. None of the methods, so far mentioned, have proven of practical clinical importance, due either to inherent defects in the methods or to their lack of simplicity.

Two groups of tests have been developed in recent years that seem to offer definite evidence as to the functional state of the liver, i. e., those based on the determination of the degree of retention or accumulation in the blood stream of bile pigment, and those in which, after the intravenous injection of certain dyes, estimation is made of the amount of dye excreted by the liver or retained in the blood stream in a given period of time.

Various methods have been advocated for estimating the bilirubin content of the serum. The simplest method is that described by Mullengracht¹¹ and modified by Maue.¹² This test is relatively easy to perform, and within certain limits gives useful clinical information.

Approximately 5 c.c. of blood is withdrawn from a vein into a clean, dry test tube. After separation of the serum, this is carefully pipetted off, and a comparison of color is made in a Duboscq colorimeter, against a standard 1 to 10,000 solution of potassium bi-chromate. The standard is set at 15 m.m. and this number divided by the number on the serum scale, represents the icterus index. If the serum is highly colored, suitable dilutions must be made before reading. The icterus index for normal sera falls between 4 and 6; in most cases ranges around 5. The point at which visible jaundice appears varies considerably in different cases, but generally is around 15.

There exists then a zone of bilirubin retention that can be detected by this test, though no visible jaundice is present. One is enabled to follow the progress of jaundice, either upward or downward. Changes in the degree of jaundice are difficult to detect visually, especially if the case is one of long standing and the skin and mucous membrane have become deeply stained. By this method, daily fluctuations can be accurately charted. The principal sources of error are the presence of a small amount of haemolysis and the occurrence in the blood of coloring matter other than bile pigment. The first difficulty can be obviated by ordinary care in taking and preserving the blood specimen. The second contingency is rather rare, and need not cause confusion. Cloudiness of the serum, which may make the reading difficult can be avoided by taking the blood when patient is in a fasting state. This method is of special value in the differentiation of primary and secondary anaemia. Characteristically, in the first condition there is an increase in the serum bilirubin due to the augmented blood destruction going on, and the inability of the liver to rapidly remove the pigment from the blood stream. On the other hand, secondary anaemia shows a low serum figure. This may be of practical value in cases of carcinoma, presenting a blood picture not unlike that of pernicious anaemia, and associated with an absence of hydrochloric acid in the stomach. Bernheim¹³ records 10 cases of pernicious anaemia, all of which show an increase in the icterus index, ranging from 6.5 to 12.5. Murphy¹⁴ reports 40 cases of pernicious anaemia, all but 5 with indices of 7 or more, and some ranging as high as 40. Of 34 cases of secondary anemia studied by the same author, 25 had indices of 3 or under.

A steady, persistent rise of the icterus index may be associated with any obstructing lesion of the biliary system, either extra- or intra-hepatic, such as malignancy, stone in the common duct or catarrhal infection. Observations of the icterus index accurately record the change in the serum bilirubin from day to day, and may enable us to differentiate these conditions. The passage of an obstructing stone is soon followed by a definite fall of the level of the serum bilirubin. This may be detected by tests before there is a visible change in the degree of jaundice. A transitory rise in the serum bilirubin has been shown to occur in many cases following acute gall-bladder attack without obstruction. This observation may be of definite aid in arriving at diagnosis in cases of acute upper right quadrant attacks. In chronic liver conditions, the icterus index is of little value, except to follow the course of the disease and to detect the early onset of jaundice.

The van den Bergh¹⁵ test is based on the observation that when freshly prepared Ehrlich's diazo reagent is added to the serum of certain patients, a color reaction develops due to the formation of a dye, azobilirubin, while in others this reaction only occurs when the diazo reagent is added to the serum together with alcohol. The first type of reaction is called the direct and is said to be indicative of obstructive jaundice, while the second type or indirect occurs in the presence of jaundice of haemolytic origin.

In addition to the two types mentioned, we have a delayed reaction and a biphasic reaction. A reaction is considered immediate direct, if on the addition of the diazo reagent to the serum, color develops in less than 30 seconds. If color appears after 30 seconds, it is called a delayed direct. If no color appears, it is called a negative direct reaction. If color appears before 30 seconds and then after that time becomes more intense, it is termed a biphasic reaction. All sera that give a positive direct reaction will also give a positive indirect. Quantitative measurement of the serum bilirubin is made by comparing the color obtained by the indirect method with a standard color solution in a suitable colorimeter. The standard is made up to match a color equivalent to a concentration of 5 mg. of bilirubin per liter. This amount is considered one unit. Thus, a concentration of 3 mg. of bilirubin per liter would be equivalent to .6 units and a concen-

tration of 20 mg. per liter would be equal to 4 units. The amount of bilirubin in normal sera is from 1 to 3 mg. per liter or .2 to .6 units.

The van den Bergh method has several advantages. The concentration of bilirubin is expressed quantitatively in standard units or in mg. per liter. The presence of a small amount of haemolysis or of a pigment in the blood stream other than bilirubin does not affect the accuracy of the test. Technically, the test is more complicated and on this account, there are more possibilities of error in carrying it out. Clinically, it has the same field of usefulness as the icterus index, and besides has been advocated as a means of differentiating between haemolytic and obstructive jaundice. This claim was first put forward by van den Bergh, and has been supported by a number of other investigators. McNee¹⁶ considers the method to be of distinct value in differentiating these two types of jaundice. Radvin,¹⁷ in a study of more than a hundred cases, concludes that the results of the test are in accord with the clinical picture; and that it differentiates consistently between obstructive and non-obstructive jaundice. Green, Snell and Walters¹⁸ consider that the value of the direct and indirect reaction in differential diagnosis is doubtful, but that the quantitative reaction is an accurate and reliable measure of the serum bilirubin. While differences of opinion exist as to the interpretation of the direct and indirect reaction in terms of obstructive and haemolytic jaundice, it is evident that in these two reactions, we are dealing with at least two different chemical compounds causing jaundice. It would seem important to differentiate these two varieties of bilirubinemia, even if we cannot agree as to the cause of the difference.

Due to the cumbersomeness of the procedure first used to determine the function of the liver by means of phenoltetrachlorophthalein excretion and its inherent inaccuracies, this method, when first introduced, did not gain much favor. McNeil¹⁹ in 1916 modified the test by estimating the amount of dye in bile obtained directly from the duodenum by means of an Einhorn tube, after the intravenous injection of a measured amount of dye. Rosenthal²⁰ in 1922 estimated the amount of dye remaining in the blood stream at certain intervals after its intravenous injection. Three years later, after a comparative study of the numerous phthalein compounds, Rosenthal and White²¹ advo-

cated the use of bromsulphalein (phenoltetrabromphthalein sodium sulphonate) in place of phenoltetrachlorphthalein and pointed out certain advantages that it possessed as an agent for the study of liver function. Their method is relatively simple. A sterile 5 per cent solution of the dye is used and a sufficient quantity injected intravenously to allow 2 mg. per kilo of body weight. Specimens of blood are taken at exactly 5 minutes, 30 minutes and 60 minutes after the injection. After coagulation of the blood, the serum is carefully removed and placed in two small test tubes. To one is added 2 drops of 10 per cent solution of sodium hydroxide and to the other a drop of 5 per cent hydrochloric acid. By comparison, according to the method of Bogen²² with a series of standard color tubes, the amount of dye can be estimated in each specimen. The one hour specimen may be omitted if the dye has disappeared at the end of thirty minutes. Rosenthal²⁰ records tests with phenoltetrachlorphthalein on 10 normal individuals and 10 patients with extra hepatic disease, and considers a retention of 6 per cent at 55 minutes and 2 per cent at 60 minutes as the upper normal limit. He found abnormally high retention in 5 cases of carcinoma of the liver, and 4 cases of cirrhosis and in scattered cases of acute hepatitis, arsphenamine toxemia, solitary liver abscess, chronic passive congestion and toxemia of pregnancy. Using bromsulphalein, the same investigator²¹ found that, in 25 normal cases, the serum was practically free from dye at the end of thirty minutes. The retention at the end of 5 minutes ranged from 20 to 50 per cent. In 25 cases of liver disease, he found retention at 30 minutes of from 3 to 99 per cent, and considers that, as the dye is normally absent after that time, the percentage of retention can be interpreted as a true index of the degree of liver impairment. Murphy,¹⁴ using the phenoltetrachlorphthalein, found retention of from 3 to 30 per cent in all but one of various hepatic cases and normal figures on his non-hepatic cases, but concludes that the test has little diagnostic or prognostic value since the clinical diagnosis had already been made by other methods. Rosenfeld and Schneider²³ found that normal pregnant women showed the same curve of dye excretion as non-pregnant cases, but that in the toxemia of pregnancy, definite evidence of liver damage was shown by the degree of dye retention. The change in liver

function as shown by this test preceded the clinical symptoms, and they suggest that, by using this method in suspected cases, we may anticipate the appearance of clinical symptoms and, consequently, begin treatment sooner. Smith²⁴ considers the retention of the dye in the pre-eclampsia toxemia of pregnancy a valuable aid in differentiating this group from the nephritic cases. Green and Conner²⁵ report dye retention in Banti's disease, and believe that it indicates the severity of the accompanying cirrhotic changes in the liver. In pernicious anaemia, polycythemia, leukaemia and Gaucher's anaemia they found no change from the normal dye retention.

Time is too limited to review but a small portion of the evidence bearing on the clinical value of the various liver function tests. Even those methods that are most promising must be subjected to further trial and our final judgment as to their merit must await the accumulation of further clinical and experimental data. At present, however, I believe that we are justified in concluding that the icterus index test, the estimation of serum bilirubin by the van den Bergh method and Rosenthal's bromsulphalein test, separately or combined, furnish valuable clinical information in the investigation of liver disease. They are of sufficient simplicity to be carried out in any well-equipped laboratory, and present no particular technical difficulties in their performance. By means of one or more of these methods, we are aided in differentiating the primary and secondary anaemia, in separating haemolytic from non-haemolytic jaundice, and in studying the functional changes of the liver brought about by mechanical injury, infection or toxic factors.

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ROENTGEN RAY STUDIES OF DISEASES OF THE GALL-TRACT.*

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The use of the roentgen ray in the diagnosis of gall-tract disease is limited almost entirely to the gall-bladder. Before Graham, Cole, and Copher in 1924 gave us the gall-bladder dye test, the roentgen ray was of definite value in demonstrating around 20 to 30 per cent of gall-stones and in showing adhesions around the gall-bladder in a small percentage of cases. This left a rather large number of definitely diseased gall-bladders where no definite information could be obtained by this examination.

After the intravenous injection or oral administration of iodeikon, the gall-bladder can be demonstrated on the film almost as clearly as the stomach can after a barium meal.

Graham began this work with the theory that if he could obtain a substance relatively non-toxic and soluble, containing a metal or atoms of iodine or bromine which could be carried to the gall-bladder in sufficient concentration, this material in the gall-bladder would make it opaque to the roentgen ray. Necessarily the substance would have to be excreted

by the liver and carried to the gall-bladder in the bile. Using the knowledge that the gall-bladder concentrates its bile, he reasoned that a certain time would have to elapse before a shadow of maximal density would occur. He also concluded that a normal gall-bladder would show the densest shadow, and that if the liver were too badly diseased to excrete the material, or the cystic duct were blocked, or the function of the gall-bladder seriously impaired, no shadow would be produced. During their investigations they used a great many compounds which were the derivatives of the phenolphthalein and phthalein groups, and finally recommended tetrabromphenolphthalein.

In January, 1925, Whitaker and Milliken recommended the use of sodium tetraiodophenolphthalein, since this salt is no more toxic and is about twice as opaque to the roentgen ray as the tetrabrom salt.

The dye can be given orally in enteric coated capsules or intravenously. When it is given intravenously, a faint gall-bladder shadow can usually be seen from about the fourth to the seventh hour afterwards. The shadow of the normal gall-bladder as a rule increases in density until about the twenty-fourth hour, but at this time it is about half the normal size. From this time until the thirty-sixth to forty-eighth hour the shadow gradually decreases in size until it disappears entirely.

In cholecystography we have not only an unusually accurate method for the study of disease of the gall-bladder, but also for the study of gall-bladder function. The size, contour, and position of the gall-bladder shadow are plainly visible. Cholesterol or negative gall-stones show as less dense areas within the gall-bladder shadow. Adhesions distort or pull the gall-bladder to one side. Of more value probably than any of these are the findings in the cases where no gall-bladder shadow, or a very faint shadow, shows. Where no shadow at all shows, especially by the intravenous method, usually there is an obstruction of the cystic duct or marked disease of the walls of the gall-bladder. Graham has shown that usually in cholecystitis, the interstitial tissues and lymphatics of the gall-bladder, and not the mucosa, are diseased, and that this is probably due to the fact that gall-bladder inflammations are so frequently associated with a lymphangitis secondary to an hepatitis. When the lymphatics of the gall-bladder wall

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are diseased the organ loses its power of concentrating the bile and in the same way the power to concentrate the dye, and gives a less dense shadow. A very serious disturbance of the liver function might also cause an insufficient amount of the dye to be excreted to cast a shadow of the gall-bladder, but in all probability in such instances there would be some clinical evidence of liver disease. When using the oral method a marked disturbance of intestinal digestion and absorption might prevent enough of the dye being carried to the liver to cast a shadow of the gall-bladder.

Sosman, using cholecystography, has made a rather extensive study of the function of the gall-bladder. After using many drugs and foods by mouth and duodenal tube, he found that fats by mouth cause the quickest and by far the most marked effect on the gall-bladder. Within from twenty minutes to one hour and a half after the ingestion of fats, the normal gall-bladder will contract markedly and practically empty itself of the dye. He was unable to satisfactorily explain this phenomenon, since the gall-bladder gave the same quick response to the ingestion of fats in a patient who had a gastro-enterostomy and closed pylorus. It is not definitely known whether the gall-bladder empties through the cystic duct or through the lymph and vascular channels in the gall-bladder wall. However, the majority of investigators believe that it empties through the cystic duct. Sosman found that psychic tests, sight, smell, and taste of food had no effect on the gall-bladder. Carbohydrates had no effect; proteins and peptones caused a moderate decrease in the size of the shadow. Olive oil and castor oil, by mouth; atropin, physostigmin, pituitrin, adrenalin, by hypodermic injection; hydrochloric acid, nitroglycerin, meat extracts, ginger, sugar, starch, glucose, and alcohol, by mouth, had no appreciable effect on the size or density of the gall-bladder shadow. Mechanical factors, forced respiration, heat and cold, stimulation of the ampulla of Vater by food, etc., had practically no effect. Magnesium sulphate by duodenal tube had only a moderate effect on the gall-bladder.

Sosman found that an intact sphincter of Oddi was necessary to obtain a normal cholecystogram. Sodium bicarbonate by mouth caused a slight increase in the size of the gall-bladder shadow. He suggests that this apparent relaxation of the gall-bladder may be the

reason why many gall-bladder patients experience some relief after the ingestion of alkalies. We know that fats cause a marked contraction of the gall-bladder, and he also suggests this as a possible reason why many patients with cholelithiasis avoid fats.

In diseased gall-bladders, the concentration of the dye and the contraction of the gall-bladder depend upon the amount of disease present. Where there is marked disease, practically no concentration occurs. This frequently enables us to determine slight variations from the normal, and it is hoped that by making earlier diagnoses, diseased gall-bladders can be removed, giving complete relief from symptoms before there has been a widespread involvement of the lymphatics, liver, and pancreas.

Cholecystography has become a routine procedure in all the large clinics throughout the country, and all of them report the method as accurate in percentages varying from 90 to 96 per cent. The average is about 93. This is a remarkable record when compared with previous statistics. In our own work the diagnosis has proven correct in about 90 per cent. Where the diagnosis is doubtful after the oral method, an intravenous injection should be done; since only in this way can we be certain that the dye has reached the liver.

When positive evidence of gall-bladder disease is found by this test of gall-bladder function, we believe that the method will almost invariably prove correct at operation. Occasionally a gall-bladder functioning normally and reported as normal will be found at operation to be slightly diseased. This, in our experience, is more apt to cause error than is the reporting of a normal gall-bladder as diseased. However, if the time of the appearance of the dye as well as the amount of concentration is taken into consideration, probably very few cases will be reported as normal when there is definite disease present.

SUMMARY

We believe that where this test is combined with the usual gastro-intestinal barium meal examination, including a barium enema and, in certain instances, an examination of the bile obtained by duodenal tube, a far greater percentage of correct diagnoses in gastro-intestinal diseases will be made than has been possible in the past.

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THE MEDICAL TREATMENT OF THE DISEASES OF THE LIVER AND GALL-BLADDER.*

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The speakers preceding me today have been able to recount notable additions during the past several years to our knowledge of the physiology of the liver, as well as to diagnostic measures of very great value and promise in connection with the diseases of the liver and of the gall-bladder. I feel reasonably sure the gentleman who follows me can and will with justice record advances of more or less importance in the surgery of these organs.

To what drug or to what method of medical treatment can one point today and say this constitutes a real addition to our knowledge of the management of the diseased liver or gall-bladder? Perhaps there are those present who will disagree, but in my opinion there has been no contribution rational or empirical of a fundamental nature to our knowledge of the non-surgical treatment of the liver or gall-bladder within my generation. Perhaps I should say that I do not refer to syphilis, malaria or other systemic infections, which may involve the liver along with other organs and tissues, or to obviously secondary involvements of the liver, as in the congestion of heart disease.

When inquiry is made into the probable reasons for lack of advance in the treatment of the liver particularly, it will be seen that clinical experience and empiricism have yielded us little of value. Pharmacology and rational therapeutics have been greatly handicapped by our ignorance of the fundamental facts of physiology upon which developments in these fields of investigation are dependent. Comparatively recent investigations, of which those of our distinguished guest have been by all odds the most important, are beginning to clear our vision and will doubtless prepare the way for a more productive era in the fields of pathological physiology, pharmacology and treatment.

Our medical fathers attributed many ills

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to supposed liver disorders. Some of these are still firmly fixed in the minds of the laity, who insist upon being treated for sluggish, inactive or torpid liver or for so-called biliousness. These are, of course, no longer satisfying concepts in modern medicine. We must think of liver disturbances as being concerned with one or more of the known activities of liver cells, such as the storage and subsequent liberation of carbohydrates and fats; its essential activity in connection with protein derivatives in the body; the bile excretory function; its specific action in destroying toxins; or other of the recognized functions of the organ.

Thus far experimental methods have yielded but meager information in regard to the perversion of any of these important functions of the liver. The problem is being studied by a number of investigators, but I think I may fairly state, without going into the details of recent publications, that thus far not a great deal of headway has been made. It often happens that bedside observation precedes the work of the laboratory investigator. In case of liver dysfunctions, however, it would seem that we have no clear clinical concept or picture of any one of the disturbances of liver activity, except where there exists the advanced stages of anatomical change. Atrophic cirrhosis is an example of what is meant. With its multifold functions, it is, of course, easily conceivable that disturbances may occur either in conjunction with or independent of definite anatomical changes. On the other hand, there is much evidence to support the supposition that the liver has a very large margin of compensatory safety. In any event, the point I wish to make is that at present we have a very vague and unsatisfactory clinical picture of liver disease, other than the syndromes coming on in the advanced stages of pathological processes.

On the other hand, if modern pharmacology has been barren in the sense of not affording us remedies known to have specific action on liver function, it has at least taught us that many of the drugs formerly and frequently employed for their supposed action on the liver are without demonstrable effect. The list of so-called cholagogues was formerly large and probably no group of drugs was more frequently employed. Today the list is very small and the survivors are viewed with more or less distrust. Probably certain food sub-

stances, the proteins and fats, have more influence than any other agents on the rate of bile excretion from the liver. Bile salts act as stimulants to excretion in a more or less selective way as regards the constituents of the bile, but the action of these salts cannot be said to be sufficiently strong to be of great clinical importance. Magnesium sulphate coming in contact with the duodenal mucosa seems to definitely increase the flow of bile. The same is true of certain oils and fats. McClure and others have used oleic acid extensively in experiments upon animals. Olive oil has long been employed in the treatment of gall-bladder disease, and its action is probably explainable upon this ground. The action of benzoates and salicylates as cholagogues is apparently too weak for therapeutic purposes. No drug is definitely known to increase the amount of cholesterol excreted by the liver. Insulin is, of course, concerned with carbohydrate metabolism, but does not directly affect liver function so far as is known. Others have called attention to the remarkable fact that fortunes have been made in so-called liver pills and yet medical science is practically without knowledge of a drug which has a direct or important influence upon any one of the known functions of the liver cell.

At this point I should mention the recently employed use of novasurol in cirrhosis of the liver. It will be remembered that novasurol was introduced some years ago by German investigators. It is an organic mercurial containing something more than 33 per cent of mercury. Its largest field of usefulness has apparently been as a diuretic in heart disease, but it is also used in nephritis and in cirrhosis of the liver. Rowntree and his co-workers have reported good results from the use of this drug in the ascites accompanying liver cirrhosis. It is usually given intramuscularly in dosage of $\frac{1}{2}$ to 2 c.c. of a 10 per cent solution. Such a dose is given at intervals of several days. Keith and his associates have combined the use of ammonium chloride with novasurol, giving the ammonium chloride for several days preceding the administration of the latter. It is said that novasurol produces a diuresis greater than that gotten from any other known diuretic. Our experience in the University Hospital bears this out, but our observations have been, as yet, too limited to warrant definite conclusions.

Gall-bladder disease presents itself to us

clinically as a far more definite and a more easily recognized entity than do diseases of the liver itself. Without attempting to quote statistics, it seems fairly well established that gall-bladder disease is very frequently encountered in its acute and chronic form, as well as being responsible for an exceedingly large group of chronic digestive disorders and probably of other more remote disturbances in the body. I think we will all agree that no agent at our command has any appreciable effect in the expulsion of the formed stone from the gall-bladder or bile duct. To quote Bland-Sutton, "Although the medicine man can point to wonderful cures and the sorcerers can cast out imaginary devils, neither a sorcerer nor a physician can expel gall-stones." Many small stones and some larger ones pass into the intestines through the bile duct from time to time, but we cannot in any measurable degree effect the expulsion. We are also without any satisfactory means of destroying the stones in the gall-bladder or ducts by solution or otherwise. It also seems that there is little prospect that an agent will be found to either dissolve or expel stones. Medical treatment is, therefore, seemingly concerned with discovering a method of preventing the formation of gall-stones. There are two well-known theories of gall-stone production, which more or less merge into one. It is generally believed that infection occurs first, and later there is a deposition of cholesterol, bile pigment, calcium and other substances forming the stone. If this is true, the problem of preventing gall-stones is the same as that of the prevention of cholecystitis. There are those, however, among them Moynihan, who believe that pure cholesterol stones are formed independently of infection. In this event, cholesterol metabolism and excretion may play an important role in the etiology of such stones.

Naunyn and his pupils taught that the cholesterol output of the liver was constant and uninfluenced by diet, and this has been more or less an accepted idea for years.

It is interesting to note that recent investigations, notably those of Rous and McMasters, have shown that blood cholesterol and particularly the concentration of cholesterol in bile varies considerably with the food intake. During starvation the cholesterol content of the bile is very low. If food rich in cholesterol, such as egg yolk, brains and liver are taken, the cholesterol content of the bile is very con-

siderably increased. According to Moynihan, it is also increased in the blood during the period of pregnancy and possibly during the menstrual period. These observations are, of course, in line with clinical statistics, which show that gall-bladder disease is most common in women who have had repeated pregnancies. Moynihan and other workers also find a relatively high blood cholesterol in individuals known to have cholelithiasis. These observations offer some rational basis for prophylaxis, as a diet low in cholesterol would be indicated where gall-bladder disease can be detected in its earlier stage. The prevention of infection is at present an unsolved problem. Apparently, infection may be carried to the gall-bladder through the general circulation, from the portal system, or by way of the lymphatics. The bile is apparently a natural channel for the excretion of dead or living bacteria, and, like the tonsils, the bile excretory apparatus often sacrifices itself in performing this function. The problem here is that of eradicating focal infection elsewhere in the body and particularly of avoiding long standing inflammatory conditions in the area of the drainage of the portal vein. The fact that certain drugs of the phthalein group are shown to be concentrated in the gall-bladder under normal conditions at least suggests the possibility that a drug may be found of antiseptic properties capable of concentration in the bile to a sufficient degree to act as a bactericidal agent. In the past hexamethylenamine (urotropin) has been used for this purpose. It still has its advocates, but it is generally believed that its effects are practically negligible.

The problem of the treatment of cholecystitis by so-called non-surgical drainage is one about which there is far more room for discussion. To restate the technique of transduodenal drainage as advocated by Lyon or of Meltzer's law of contrary innervation, upon which it is based, is, I take it, unnecessary in this body. From the outset, Lyon's suggestion caught the attention of the medical world. To greater or less extent the method has probably been used in every clinic and by many practitioners throughout this and other countries. A large number of reports are available in the current literature of the past several years dealing with various aspects of the subject. It will be understood that these remarks have reference solely to the therapeutic application of the method. Perhaps the report

setting forth the most striking statistical data, as well as the fullest exposition of the principles involved, is that of Lyon and Swalm presented at the May, 1925, meeting of the American Medical Association. It may be recalled that this report was based upon some 14,000 drainages. A study was made of 376 cases of gall-bladder disease of which 318 were treated by duodenal drainage combined with other non-surgical methods. Briefly put, these authors state that permanent cure was effected in 30 per cent of cases; 52 per cent were much improved, could discontinue further treatment, and remained in good health for more than a year; 9 per cent were considerably improved, and only 2 per cent were entirely unimproved, of which one died. In this article the authors enumerate some fifteen classes of cases in which they consider the method indicated. Time does not permit me to go over these, but they believe that excellent results may be obtained in three out of four of all gall-tract patients by the use of non-surgical methods. Reports from many other observers show beneficial results in varying degree. These include some of our most prominent internists and gastro-enterologists—men of extensive clinical experience.

On the other hand, the method has been tried and practically discarded by many other equally able observers. From available information there is little doubt that there is a group of cases in which the patient will either recover entirely or be materially or temporarily benefited by the regime advocated by Lyon. The question is, whether this group would not do qually well if treated by other non-surgical methods. In other words, does intermittent or continuous duodenal intubation and medication fulfill therapeutic demands not attainable by other procedures. Personally, I share the difficulties and doubts expressed by Prof. Carlson concerning Lyon's theories. It will be recalled that Soper and others report having obtained results experimentally and clinically by the use of magnesium sulphate administered by mouth as definite as by the use of the duodenal tube. In the University Hospital we have thought our cases of acute catarrhal jaundice recovered more rapidly when treated by the tube than otherwise. We have treated cases of cholecystitis by Lyon's method with varying degrees of success. Incidentally (but not fundamentally) the mental impression on certain patients of seeing the bile drained from their intes-

tines is most impressive. As a personal opinion, I greatly doubt whether in its present form the Lyon method has more than a limited field of usefulness as a system of treatment.

As regards other medical measures, I see no reason for believing otherwise than that many cases of cholecystitis are cured and others relieved for considerable periods of time by the careful and judicious use of dietary, medicinal and other measures at our command. These cases require careful investigations, particularly those in which the manifestations are largely digestive. Much can be done for these patients by diet and medication directed to hyper- or hypo-chlorhydria, pylorospasm, constipation or other reflex or accompanying conditions which may be present in the individual case. I am wedded to no particular drugs or methods and will not take the time to outline methods of treatments which are readily accessible in current literature and standard texts.

Finally, those of us who follow our cases to the operating table are impressed with the futility of present day non-surgical methods in dealing with many chronic, deep-seated infections of the gall-bladder or ducts, oftentimes filled with stones. Aside from local and digestive distress, the chronically infected gall-bladder acting as a focal infection, is probably as dangerous as the infected tonsil, sinus or tooth. It is, therefore, to be greatly hoped that improvements in methods of diagnosis will enable us to more clearly differentiate the group of cases in which we can expect cures by medical methods from that group in which it is the clear duty of the physician to put his patient into the hands of a competent surgeon.

SURGICAL TREATMENT OF THE LIVER AND GALL-TRACT DISEASES.*

By HUGH H. TROUT, M. D., Roanoke, Va.

There must be some reason for the number of medical societies having selected liver and gall-tract diseases as the subject for discussion, as well as the literature abounding with articles dealing with various problems concerning hepatic function and disturbances. Certainly the somewhat recent work of Evarts Graham and his co-workers, along with the studies of Judd, Rowntree, van der Bergh, Sweet, Mann and numerous others is sufficient stimulus to explain this increased interest in

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the subject selected by the Medical Society of Virginia for their symposium at this meeting.

Cysts and secondary abscesses of the liver are the most frequent surgical conditions involving this organ, and, as their surgical treatment is so evident, it has been decided to confine this part of the symposium largely to the surgical treatment of the diseases of the biliary tract. However, the Talma-Morrison operation for cirrhosis of liver does occasionally give good results, but, where there is a large amount of ascitic fluid with liver destruction, no beneficial results should be expected.

In gall-bladder surgery, as in every other branch of surgery, when to operate is usually a hard question to decide, but, also, when not to operate is often even more perplexing. We have all seen cases which were apparently definitely cholecystitis, but in whom a positive Wassermann was obtained and, with proper treatment, the symptoms disappeared. In the practice of doing routine Wassermanns and Kahns, we have, during the past several years, picked up almost accidentally four cases in whom syphilis was causing the symptoms of gall-tract trouble, but in whom there was no history of luetic infection and two of the cases had had their gall-bladders removed—one of which we did—and, in both, the symptoms persisted after the operation until relieved by antiluetic treatment. The other two were saved from operation by the routine taking of Wassermanns and Kahns.

Not so many years ago in gall-bladder cases, the dictum was "the time to operate is when the surgeon first sees the patient." Happily for the patient, that day, which was never popular, has passed, and now we find ourselves somewhat in the same position we were a few years ago in regard to the prostatic patient, in that we are today beginning to make a more careful study of the patient's history, a more thorough and comprehensive examination of blood and urine, and, to a certain extent, are able to apply a fairly satisfactory functional hepatic test. This analogy between the liver and urinary tract is very attractively presented in the *Annals of Surgery*, October, 1926, by Edwin Beer. With these various aids as our guides, we are today preparing our patients for safer operations done at the proper time, and carried through their convalescence with less discomfort and decreasing mortality and morbidity.

Whenever it is possible for a patient with an acute gall-bladder to "cool off" before an operation, it should be done. However, the patient should be in a hospital where a careful watch can be made of the progress, and any emergency met that might arise.

In the pre-operative preparation of the patient, not only should the coagulation time be estimated but some definite determination be made of the amount of bile pigment (bilirubin) present, so as to use these, along with the clinical study of the individual patient, as guides in the bringing of the patient to the best possible condition for operation.

If the coagulation time is over five (5) minutes, and no surgical emergency exists, calcium lactate by mouth can be depended on to improve this complication. This is given by mouth in a soluble form in 20 grain doses three times a day. In addition to this, the employment of an abundant fluid and carbohydrate intake will materially help. However, if the coagulation time is greatly delayed, especially if the patient's condition demands an immediate operation, 5 c.c. of a 10 per cent solution of calcium chloride given intravenously as recommended by Walters and Waltman¹ will add much to the safety of the operation and convalescence.

Blood transfusions are sometimes of aid, but should only be undertaken with extreme care, for a blood graft is not without its own danger, and no matter what method is employed "reactions" do occur.

Glucose intravenously, when indicated, should also be given with caution, as should all medication given in the vein.

Of the various tests to estimate the amount of bile pigment (bilirubin) in the blood, the van den Bergh or some modification, such as Murphy's,² is the one most commonly employed. Very little, except operative interference, can be done to reduce the amount of bilirubin in the blood where such retention is due to obstruction of the bile duct. Some small reduction might be expected by increased renal elimination, though, naturally, this is very indefinite.

Abel and Rowntree, in their application of the phenoltetrachlorophthalein dye test to the liver, have furnished us with the basis of a functional test which eventually will probably be as much aid to the surgeon in preparing the patient for a gall-tract operation, as the phenolsulphonephthalein is now in the prep-

aration of a prostatic and kidney patient. However, as an aid in proper preparation of a patient with a biliary tract complication, the test, as yet, has not proven of much practical aid, but it is of distinct value in helping us to determine whether to do a cholecystectomy or cholecystotomy.

One should not be too enthusiastic about placing any dye in the blood stream, for, here, also, "reactions" do occur in spite of what some advocates of the tests claim. The role of the reticulo-endothelial system in such reactions is a most interesting speculative field, but the practical application is, intravenous dye tests are not without danger and discomfort to the patient.

If we are not careful, in our desire to use the advantages of these new methods, we may easily forget that pre-operative preparation can be far over-balanced by the risks in delay, especially in jaundiced patients. Also, the information so obtained may not be worth sufficient to the patient to justify the inconvenience necessitated.

The practice of some surgeons of reducing rapidly the weight of patients before operations is bad, for, in such a process, they also lessen the resistance of the patient. In very obese patients, if the surgeon can obtain co-operation, reduction can be made slowly and without danger by a suitable diet, if the symptoms will allow of delay.

Occasionally one sees a patient who has sugar in the urine before a cholecystectomy for gall-stones or cholecystitis, which disappears after the operation, and, incidentally, these cases are usually quite fat. I do not think these cases should be considered to be true diabetics, but rather patients with some infection of the pancreas which is relieved by removing the infected gall-bladder.

Having properly prepared the patient for the operation, naturally, the first question to arise will be the choice of the anaesthetic. While ethylene and oxygen unquestionably have a very definite role in the handicapped patient, ether will continue, for some time to come, the safest and most satisfactory in the hands of the average surgeon. However, it should not be forgotten that ethylene and oxygen do give a better relaxation than is usual with nitrous oxide and oxygen, and often, especially when combined with a little ether, will allow the surgeon a satisfactory and comfortable exposure, and the absence of post-

operative nausea will be of considerable aid in the convalescence. The fact that ethylene is explosive should only serve to make us more careful in its use, and certainly not to scare us into not employing it.

A high right rectus incision with the upper part of the incision turned toward the xiphoid cartilage and the skin and fascia cut further down than the peritoneum in the lower end of the incision, usually gives an excellent exposure and allows an easier closure of the peritoneum.

In the uncomplicated cases the liver can be delivered either by traction on the gall-bladder, or, as is done in many hospitals, cutting the suspensory ligament, applying traction on same, and suturing together before closing the abdomen. We have never found it necessary or advisable to pack gauze between the diaphragm and the liver, as has been advocated, for such a procedure would certainly add to the traumatism and shock of the operation, and I do not believe would be of much advantage.

The sooner we learn that gall-stones are a sign of previous trouble and that it is not necessary to have gall-stones to have serious disease of the gall-bladder, then the more definite will be our understanding of the indications for surgical procedures. In this field of surgery, as in all others, surgical judgment is required—so much so that it is now no longer a question of cholecystectomy *versus* cholecystotomy, but rather whether there is, or has been, actual disease existing. For example, the decision as to whether there is a "strawberry" gall-bladder present is sometimes more difficult than some surgeons would have us believe.

It is true a gall-bladder can be removed, and apparently no bad effects follow, but, we should not forget that the gall-bladder has at least two definite functions, and after the removal of the gall-bladder, compensation with the loss of these functions does have to take place. Such compensation means an additional load on some other organ. However, a definitely diseased gall-bladder should unquestionably be removed, and the above remarks are made only to caution against the apparent tendency towards cholecystectomies without sufficient basis to justify the practice.

In deciding whether a gall-bladder is diseased or not, cholecystograph is sometimes of aid. Graham³ states that the failure of the

gall-bladder to concentrate the material sufficiently does sometimes account for the failure to obtain a shadow of the gall-bladder, and this may be due to disease of the wall, and such a finding will help in the determination as to whether the gall-bladder is diseased or not. He further states, "It is possible, therefore, that a functional test of the gall-bladder, such as is made possible by cholecystography, will readily prove to be a more accurate index of the actual condition of the organ than gross pathological anatomical findings at operation." He, however, does not think this has been tried sufficiently to warrant sweeping conclusions.

Of course, where one finds a small contracted fibrous gall-bladder, one naturally recalls Courvoisier's observation that the gall-bladder has attained this condition by the forcing a stone into the common duct, and somewhat also due to the secondary infection. Therefore, we should expect to find a stone in the common duct in such a case.

With a distended gall-bladder, no adhesions and jaundice, malignancy should be considered.

The size and feel of the lymph nodes is sometimes an aid in determining whether infection is or has been present, as well as the possibility of malignancy.

Many surgeons feel if there is a definite hepatitis present, the gall-bladder, as a source of infection, should be removed, but I, personally, have found it extremely difficult and uncertain to determine whether there is a hepatitis existing or not. Certainly all surgeons should take every opportunity to examine the gross appearance of all livers so that the abnormal liver may be recognized when presented.

Cholecystectomy gives far more satisfactory results in the vast majority of cases, but there are still those cases in which cholecystotomy has a definite field, such as the badly handicapped patient in whom it is best to remove the stone, institute drainage and do this with a local anaesthetic. In a patient with jaundice associated with cholecystitis, cholecystotomy is a safe method of relieving acute symptoms and providing drainage, or in a patient on whom a gastro-enterostomy or some other primary operation has been done and gall-stones present in gall-bladder, cholecystotomy offers a safer procedure than cholecystectomy.

Whenever practical, the appendix should be examined, for there is some relationship be-

tween appendicitis and cholecystitis, and, if the patient's condition will justify it, and appendectomy should be done.

Adhesions between the gall-bladder and the duodenum are more often due to cholecystitis than to duodenal ulcer, though Bruce⁴ has recently called attention to the association of cholecystitis with duodenal ulcer, and reports six cases in addition to the four previously reported by Judd⁵ of bleeding ulcers found in the duodenum which were relieved by cholecystectomy.

The exploration of the common duct is never without some uncertainty, and the opening of the same is not without danger. In this decision, the history, especially as regards jaundice, the condition of the liver, the type of the gall-bladder, the dilatation of the common duct, the amount of bilirubin present, etc., will all be of aid in the determination of this question. Many surgeons have overlooked stones in the common duct, and, I regret to have to state, I know I have in at least one case.

If the common duct is opened, frequently the small finger can be passed upward to the hepatic ducts where stones are very occasionally found, or downward toward the duodenum. A small scoop will often go where the finger will not, but, with the large majority of cases, the surgeon has to be satisfied with the passage of a probe. The passing of a probe through the remains of the cystic duct into the common duct is usually not easy, and often very uncertain. In addition, the common duct has a narrower diameter at its junction with the cystic duct than anywhere else in its length and much traumatism at that locality is, therefore, more apt to result in stricture. Reid, however, advocates draining the common duct, after the removal of stones, through a small tube placed in the cystic duct.

In rare instances, it is necessary to remove stones by opening the duodenum, but this procedure should be avoided if possible. However, this method is far easier than is generally considered, and infection high in the alimentary tract is not as frequent as nearer the colon.

Having decided to remove the gall-bladder brings up the question whether to start the cholecystectomy at the cystic duct and dissect out toward the fundus, or start at the fundus and go toward the cystic duct. There are many advocates of each method, and both present advantages. Personally, I prefer to start at

the cystic duct, but there are cases in which starting at the fundus renders the operation easier and safer. Certainly every surgeon should follow the method which comes most natural to him, and no surgeon should confine himself to either method but employ the one applicable to the individual case.

In regard to drainage after the removal of the gall-bladder in uncomplicated cases, there is much diversity of opinion. I can see no harm in a small drain properly situated with the omentum placed between the duodenum and the drain, and such is a comfort to the surgeon and adds to the safety of the patient, and our practice has always been to drain. I am fortified in this position by having seen, during the last several years, three patients—all supposedly clean cases and none drained—in two of whom we opened abscesses under the liver—one two months after the primary cholecystectomy and the other six months, while the third showed a peritonitis on autopsy. Of course, no one can positively state such complications might not have happened had drainage been employed, but, I have never seen it, and, it does sound more reasonable to presume infection will follow outward a drainage tract.

Holman⁷ and Blalock⁸ state there was drainage of bile in 35 per cent and 38 per cent of cases following cholecystectomies in the two series of cases they studied. As the bile drainage ceases very soon after removal of the drain—often within twenty-four hours,—it is not probable this bile comes from the cystic duct tie not holding, but, rather the bile is coming from injury to the liver bed from which the gall-bladder has been removed.

Holman concludes this leakage of bile is often due to injury to anomalous branches of the hepatic duct. It is certainly more reasonable to believe this injury is done during the operation than to accept the remote possibility of trauma from the drain being the etiological factor.

A silk tie on cystic duct in clean cases is employed in many clinics. Suturing over the stump of the cystic duct with peritoneum is an excellent practice when easily done, but, where the surrounding tissue is oedematous, etc., the advantages of the procedure are outweighed by the increased danger.

If the drain is removed gradually by the third or fourth day, any nausea which might

be due to its presence is prevented.

Yates advocates sewing the peritoneum, which has been dissected off of the gall-bladder, over the drain after it has been placed in the liver bed from which the gall-bladder has been removed.

It is good practice, when practical, to bring the drain through a stab incision in the flank after placing the end of the same in Montgomery's fossa.

Where one has a gangrenous gall-bladder in a patient who is not doing well on the operating table, the suggestion, usually attributed to the late Dr. A. J. Ochsner, of splitting the lower surface of the gall-bladder open, packing with gauze and placing a piece of rubber protective between the gauze and the general peritoneal cavity, has proven of much aid in some difficult cases.

In chronically infected gall-bladders with a probable associated cholangitis, a long tie or clamps can be left on the cystic duct so that the cystic duct can be opened in case of liver sepsis.

Injury to the common duct can best be avoided by having a good exposure and a clear understanding of the anatomy of that region. Occasionally a suture slips, or a clamp springs loose, when tying the cystic vessels, and the surgeon, grabbing with a clamp in a bloody field, includes a portion of the common duct. It is in such a situation as this the suggestion of Dr. W. J. Mayo is of much aid. He advocates catching the region that is bleeding with the fingers; then, while holding with fingers, clean the field, isolate vessels, clamp and tie.

Judd⁶ states "the belief is becoming more prevalent through accumulated experience that, in a considerable proportion of cases, common duct stricture is the result of a general obliterative cholangitis."

Where exposure is difficult, the small electric lamp, which is cool and can be sterilized along with the cord, is of distinct aid when placed in the lower angle of the exposed field.

The best method of treating injuries to the common duct is to prevent them by careful and clear isolation of the cystic duct before clamping the same.

However, repair of injury to, or strictures of, the common duct is a "chapter unto itself", and any surgeon who has had one or more such operations to do will realize it is too long a chapter to be discussed except as a separate

paper.

The making of an anastomosis between the gall-bladder and the alimentary tract is gaining in favor, and is indicated in the following type of cases: (a)—In old patients whose pancreas is hard, and the surgeon cannot be sure whether the same is malignant or not; (b)—in inoperable obstructions to the common duct; (c)—diverticulum of the common duct; (d)—in operable lesions of common duct; (e)—carcinoma of gall-bladder. One very interesting point about this procedure is to be found in the fact, when due to the cessation of the pancreatitis, or other cause, there is no longer use for the side-tracking of the bile; the anastomotic opening closes, being similar, in this respect, to what happens frequently in the case of a duodenal ulcer following a gastro-enterostomy.

The position of the alimentary tract which is most convenient and will allow apposition without traction, is the site for the anastomosis.

Crile has been applying heat during and after the operation by means of diathermy to the liver in the badly handicapped patients, but, as yet, this practice has not come into general use.

The post-operative care of such patients is very similar to that of any other abdominal operations, e. g., proctoclysis, subcutaneous infusions, blood transfusions when definitely indicated, gastric lavage more frequently than is generally practiced, and small doses of morphia given frequently.

Here, too, the post-hospital care of the patient should be followed with the aid of the family physician, and I am sure an honest review of our results, studied several years after the patient has left the hospital, will be, on the whole, gratifying, but, in such a study, we will find we have made mistakes, which should be of aid to us in the future.

No attempt has been made to cover this large subject more than very hurriedly, and only the more important and somewhat recent developments have been discussed.

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DISCUSSION OF PAPERS BY DRs. MANN, MARTIN, HODGES, FLIPPIN AND TROUT.

DR. CHARLES C. HASKELL, *Richmond*:—I think we all owe Dr. Mann an immense debt of gratitude. Dr. Mann is representative of the new era. It has not been so many years ago when laboratory worker and clinician were definitely separated; when a worker was put in a laboratory, he was supposed to have nothing at all to do with the clinical side of medicine. He was to work on abstract problems entirely. But the tendency nowadays, certainly in this country, is more and more to have the laboratory worker devote his attention to subjects of practical clinical importance. It was only recently that a prominent English physiologist decried this tendency. He said we should teach in our medical schools abstract physiology, but I think that is erroneous. We want to know the bearing of our work on medical problems. Through a method which is beautiful in its simplicity, Dr. Mann has approached the problem of hepatic function and has already given us a tremendous amount of valuable information. Not only that, but he has stimulated workers elsewhere.

Important as is Dr. Mann's work on the liver, I can not help but feel more attracted to the work that has been done on the gall-bladder. For years it has been believed by physiologists that the gall-bladder has a function. It would seem to be adapted to the work of storing the bile in the interim and supplying it to the intestine when needed. Some of us in Richmond have had evidence that sought to disprove this theory entirely; Dr. Sweet proved to his own satisfaction that the bile never escaped from the gall-bladder. Through the work of Boyden, Whitaker, Mann, and others, it has now been conclusively shown that the gall-bladder does discharge its contents, apparently by muscular contraction. Dr. Mann's statement as to the function of the gall-bladder affords me considerable satisfaction. I do not know anything about practical clinical medicine—therefore I am probably well qualified to discuss it. It never appeared to me that the gall-bladder is a functionless organ. Reading more or less clinical literature, it looked as if a good many surgeons were following a good old Hibernian dictum, "If you see a head, crack it"—if they see something easy to get out, take it out. Now, many people are apparently living all right without gall-bladders, but we can not say definitely that there is nothing wrong with them; the patient may have lived a while longer or may have been a little happier had his gall-bladder not been removed.

In Dr. Flippin's paper the action of magnesium sulphate on the sphincter was brought up. You all know that Meltzer conceived the idea of reciprocal innervation of the sphincter and gall-bladder, that if the sphincter contracted, the gall-bladder relaxed. Lyon, therefore, used magnesium sulphate to inhibit the sphincter. Whitaker suggests that the magnesium sulphate, by its quieting action on plain muscle, relaxes the sphincter, but has no power to cause contraction of the gall-bladder.

DR. J. SHELTON HORSLEY, *Richmond*:—We are all greatly indebted to these gentlemen who have given us this excellent symposium on the liver, and particularly to our distinguished guest, Dr. Mann. Modesty forbade him to stress too much the experimental work which he has done on the gall-bladder. Whitaker, of Harvard, has shown on animals by successive roentgenograms that iodized oil injected directly into the gall-bladder will trickle through the cystic

duct. Whitaker has also shown that when the sphincter of Oddi is paralyzed, so permitting free drainage of bile from the common duct, a very large percentage of these animals develop stone in the gall-bladder. Now, if those animals with free drainage of bile from the common duct tend to develop stone more rapidly, why is the so-called medical drainage of the gall-bladder advocated? We are confusing the so-called medical drainage with surgical drainage. Undoubtedly drainage may be needed, but the tissues should also be given rest. If we have inflammation of the urinary bladder, we introduce a catheter or make a suprapubic incision and drain, but that is quite different from putting a stimulant in the duodenum and making the gall-bladder empty itself. Are we doing good or harm, if the gall-bladder is infected, by giving some substance which causes it to contract more violently than normally? If a tube is in the gall-bladder, as in cholecystostomy, and so inhibits the function of contraction, that is a different matter. Undoubtedly regulation of the diet does good, but I think if we assume that only so-called medical drainage is needed we shall not benefit the patient, except psychologically.

DR. WRIGHT CLARKSON, *Petersburg*:—I am very much interested in Doctor Hodges' paper, because this paper, with the slides shown, has been one of the best and clearest demonstrations I have seen on this subject recently.

I am particularly interested in the absorption of iodeikon (tetraiodophenolphthalein) from the intestinal tract. I do not believe intravenous administration necessary if we can positively determine that the dye was taken by the patient, that it was not vomited, and that it does not remain in the intestinal tract unabsorbed. The presence of unabsorbed dye in the intestines can be determined by a large film to include the entire abdomen.

Just yesterday I had a patient from out of town on whom I wished to do a nine-hour barium test for ileal stasis. I gave her three ounces of barium to take home, with instructions to take all of it in buttermilk at 6 A. M., and return to my office at the usual hour. When she returned I found no barium in the intestines, although she stated she had not vomited in the meantime, also that she was absolutely positive she had taken all of the powder given her. Naturally, I knew she was wrong and had not taken the powder at all. It developed that her mother had given her the buttermilk without the powder. So it is very important in cases showing no dye in the gall-bladder to check carefully the taking of the dye, any vomiting that may have followed, and to examine the abdomen for unabsorbed dye.

It has been demonstrated by workers in this field that the gall-bladder can empty very quickly, and, recalling the slide Doctor Hodges showed us with two shadows of what appeared to be two gall bladders in the same patient, I wish to state that this has happened in my laboratories on two occasions. In each case a film taken a few minutes later showed only one shadow and I believe the second shadow may have been due to dye in a loop of the duodenum, it having been suddenly deposited there by a contraction of the gall-bladder.

It seems to me there is one very important thing we have to do in regard to gall-bladder work and this is to get a very rapidly moving Bucky diaphragm. I am now trying to develop one with which we can obtain films with extremely short exposures, and thus I hope it may be possible to show not only the gall-bladder, but also the cystic and common bile ducts.

DR. MANN, *closing the discussion*:—In the past few

years I have had the privilege of being on several symposiums on the liver, and I can say without question that this is the most scientific—using the word in the sense in which the experimental investigator uses it—that I have attended.

I sometimes wonder if we do not take too narrow a view in regard to gall-bladder disease. In many instances it would appear that the condition diagnosed as gall-bladder disease is a more generalized pathologic process in which the involvement of the gall-bladder is only a part. If this is true, it would explain why some patients are cured of their symptoms when the gall-bladder is removed and other seemingly similar cases are not so relieved.

In regard to the X-ray diagnosis of gall-bladder disease, it should be noted that the clinician, surgeon and pathologist, all have their own criteria for the diagnosis of the condition. These criteria do not correspond, and thus a given case will be diagnosed differently by the clinician, surgeon and pathologist. With this in mind, it can readily be seen that until a common standard concerning disease of the gall-bladder is determined upon, it would seem premature to speak of a percentage basis of successful X-ray diagnoses of gall-bladder disease.

FURTHER REMARKS ON PROSTATECTOMY, OBSERVATION, PREPARATION, TECHNIQUE AND COMPLICATIONS.*

By ROBERT C. BRYAN, M. D., F. A. C. S., Richmond, Va.

In looking over my records of prostatectomy for the past twenty years, I find that we have had an encouraging mortality in the last hundred cases, it being a considerable improvement over the first hundred, at which time the bugbear of hemorrhage and sepsis was even greater than at the present time.

I recall very well the two-way tube which was used some fifteen years ago, by means of which the bladder was constantly irrigated, the returning reddish fluid getting lighter and lighter in color, directly in keeping with the patient's progressive weakness and exsanguination, so that a fatal termination was not infrequently experienced. It was about this time that the Hagner and Pilcher bags were devised, and I feel assured that many lives have been saved by this device which otherwise would have leaked out their existence by a constant loss of blood. It has been my custom to use these bags invariably, not only for the immediate hemostatic effect they have upon the lacerated blood vessels in the periprostatic plexus, but also for the very satisfactory canalization of the prostatic urethra, which structure, as is well known, is removed at the time of the prostatectomy.

It would appear from our figures that acute retention provokes the patient to surgical in-

*Read before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

terference. As I had the opportunity to state in an article several years ago, these old men pay but little more attention to the phenomenon of nocturnal demands than they do to wearing spectacles, slight deafness, or being unable to run for a street car, considering it one of the phenomena of advancing years, so that it is only with the pain of retention that they seek medical advice.

We have made it our rule to do the suprapubic cystostomy under novocaine immediately on the patient's admission to the hospital and only in a few instances have we attempted the rather complicated gradual decompression of the bladder. In every instance a large right angle tube is sewed in the bladder and, being somewhat elevated by the dressings, the flow from the bladder in a measure is retarded, so that its complete evacuation is not immediate. The rather profound uremic state into which many of these patients go following the suprapubic drainage is due to the transient renal glaucoma from the sudden relief of the over-distended bladder, and requires a careful adjustment of the water intake to the actual heart-power and blood pressure to avoid pulmonary stasis and acute cardiac dilatation, anuria being the leading and most serious complication of the immediate suprapubic cystostomy.

Up to this time no urethral examination has been made, only the rectal investigation, for the acute retention demanded instant surgical relief. Rest, support and water, as some surgeon has said, "water internally, water externally and water eternally", and a daily enema is now the outlined treatment.

Hypodermoclysis. — It is surprising the amount of fluid that can be taken up by the breast and axilla tissues. We have been accustomed to order as a standard rule three days before operation 1,500 to 1,800 c.c. a day, and 1,000 c.c. the day of the operation, which seems to have a beneficial effect upon the blood vessels, kidneys, and in a measure does away with that gnawing thirst that so frequently follows the profound sweating of operation. Following the operation, we are in a large measure guided by the condition of the patient and only in extreme cases do we use hypodermoclysis immediately but usually delay it until the second day. With the least amount of care of the skin on the chest wall it is surprising the amount of punctures one can stand, and the enormous amount of water that can be absorbed without any infection or abscess forma-

tion; indeed, I recall never having seen such a condition in any of the surgical cases that have been under our care. We have given to one case over 70,000 c.c., this method of water intake entirely supplanting that by mouth as the patient resolutely refused to take any water whatever. The usual fluid is normal saline solution, but if there is a nephritis plain tap water is used. We never use glucose or sodium bicarbonate on account of the pain under the skin.

In the following days, the blood urea, total non-protein nitrogen and phenolsulphone-phthalein tests are taken at intervals. We have tried only in a few cases the salivary urea, the content increasing with that of the blood. The maximal normal urea and ammonia-nitrogen in the saliva is 16 mg. per 100 c.c. corresponding to 20 mg. of urea nitrogen per 100 c.c. of blood, but in the "oedema form" of nephritis there may be no increase. We have not taken the creatin as a routine laboratory test, only, in exceptional instances.

In a visit to the Mayo Clinic about six or eight months ago I was told in their surgical clinic that they paid but little attention to the phthalein test, basing their opinion upon the patient's recovery exclusively on the blood urea. We try to correlate these two tests and only in a few instances that I recall have we operated when the blood urea was over 30 mg. per 100 c.c. One case, a man who had an interesting urea report, being 35 on admission, immediately going to 75 following the suprapubic operation, dropped to about 50, remained there for six weeks or so, and with the greatest care, hypodermoclysis, encouragement, and salt free diet, was finally reduced to 36 in three months, at which point we operated. We have found a pretty good rule to be, when the low phthalein test rises sufficiently to cross the descending urea line that operation is safe. In another instance in which there has been an uremic state for several weeks, with a blood urea between 75 and 100, this gradually dropped into the 20's and the phthalein test, which was absent on numerous occasions rose sufficiently to give a slight stain around 10 per cent, and at this point, three and a half months following the cystostomy, we operated, the patient going on to a happy outcome. We certainly possess no mechanical calipers, tuning forks or measuring line to absolutely standardize and determine the positive outcome of the patient. This prediction is influenced by phy-

sical examinations, repeated laboratory observations and experience, "For all experience is an arch, where—through gleams that untrod-den world, whose margin fades forever as we move",—but it has interested me that the tottering frail body of three-score years and ten, can, with care, gentleness, frequent examinations and snappy operation, make a convalescence gratifying to the surgeon and to the family. I have seen on several occasions the hiccupping, delirious patient, with the dry, coated tongue, extreme vesical distention, bounding pulse and hammering heart, make a good recovery which, I do not think it unfair to say, fifteen years ago would have been doomed to an oblivious euthanasia.

The patient then having had the suprapubic operation and laboratory test reported upon, it is our rule at as early a date as possible to go on to the radical enucleation, which is on an average of seven days, if we disregard some exceptional instances which show one case of one year, another of seven months, and another of six months lapse of time between the cystostomy and the major operation. Under nitrous oxide anesthesia the prostate is enucleated by the intraurethral method, as brought out by Bentley Squier, of New York, and one of two measures adopted to control the hemorrhage.

1. Ceanothin, an admirable hemostatic, is given in 4 dram doses, 40 minutes and 10 minutes before operation. If at the time of the enucleation there is but little hemorrhage, a large No. 20 French catheter is put in through the urethra by an inserted sound, the eye having been threaded with a heavy silk suture which stays above the suprapubic wound and tacked to the skin so that the catheter can be moved up and down at will, even replaced if necessary later on. Care is taken at the time of the operation to see that there are no tabs or tags left hanging free from the prostatic rim which may later on cause considerable urinary inhibition, even incontinence. I recall a prominent case from a neighboring state in whom, unfortunately, a tab was left and who continued his incontinence for several months, finally having the tag removed by another surgeon in his own state to his great relief and comfort. At the time of the operation, likewise I have found, with the supporting finger in the rectum, it is advisable to squeeze down or press firmly upon the prostatic rim with the operating hand, believing that the hemorrhage is in a measure controlled by this pres-

sure, and, although I do not know of any case that we have lost in the last few years from hemorrhage, I say frankly that I am constantly on the alert about the physiological state of a severed artery or vein being mechanically invited to pour out its contents, and I cannot see any excuse for any surgeon, under any conditions, allowing a case to bleed to a desperate state, when packing, pressure or ligation and care should avoid such a fatal outcome.

2. In the event the bleeding is free (and I have frequently noted that the longer the time between the operations, apparently the greater the hemorrhage), Hagner's bag is used, blown up tightly, pulled down and held in place by our wire perineal support. With this bag I feel at my ease that no alarming hemorrhage can occur. I do not altogether understand how other surgeons ignore the constant loss of blood from the lacerated periprostatic plexus. I have heard several say they use no bag, no packing, no hemostatic control of any kind, simply returning the patient to bed. I do not know how they do it. Since preparing this article I have lost a patient, aged 75. His laboratory report was satisfactory, he stood the enucleation well, and eight days later started up a hemorrhage which proved fatal. The Hagner bag had been removed on the fifth day.

The convalescence of the patient should be pretty well established in two or three days. We have never attempted the grandstand stuff of having them up in a rolling chair the day following the operation, but, rather, allow the old man to take his time, express his desire for food, and what he wants; as long as the circulation continues good, there is no danger of pulmonary embarrassment and we believe that the quieter he keeps the better, thereby encouraging an early union of the suprapubic wound. In one case, a doctor, there was a complete union of his wound in twelve days and he left the hospital on the fourteenth. This was most unusual, our average time following the operation being twenty-eight days. One rather unique complication at the time of the operation was the almost complete eversion of the bladder through the suprapubic opening by my assistant, the rim of the prostatic pouch being caught by the volsella forceps which were intended to seize the prostate; the bladder was returned to its normal habitat, and I am glad to say the patient made an uneventful con-

valescence. The urethral tube, Hagner bag or large catheter are left in for canalization of the prostatic urethra for six or eight days and then removed, nothing further being done to the urethra provided the suprapubic wound heals kindly. In the event there is a continued leaking from the wound, we feel assured that an urethral stenosis or prostatic tag has occurred, which must be treated by the passage of sounds or by opening up the bladder again and inspecting its floor and the internal sphincter. One case has been operated on four times for a leaking suprapubic wound. This was in a rather frail man whose tissues did not seem to unite properly, there being an inflammatory zone about the old opening which on four occasions had been excised only to break down again and again and require repeated surgical closure. This last operation, done a month ago, I trust will be the final one.

In some four cases there has been a distinct suppurative orchitis, requiring in one instance orchidectomy. The complication of epidymitis occurs in 18 per cent of all prostatectomies. I believe that in the last year this condition is considerably less frequent than formerly, due possibly to the filling of the bladder with mercurochrome at the actual time of the enucleation, elevation of the scrotum following the return of the patient to bed, and the installation of mercurochrome through the suprapubic wound at intervals into the bladder. Five cases have had a marked phlebitis, three of the right leg and two of the left, one case running a bad septic curve and requiring multiple incisions of abscesses in the leg. Four developed a distinct lobar pneumonia but made good recoveries. But the hypostatic lung is one that we are constantly on the outlook for, due to a slowing down of the blood current, the moderate hemorrhage at the time of the operation, recumbency and the pathology of old men.

It has not been our custom to put any drain retropubically, the bladder being sewed tightly to the abdominal fascia, thus obliterating the space of Retzius. In one case there was a marked suppuration in the space of Retzius, requiring incision in the perineum and the lower abdominal wall. In this instance the old man developed pulmonary infection and died, the personal equation of his resistance being at an extremely low ebb.

The presence of sugar in the urine has occurred seven times in the last 100 cases. This contraindicates any incision, so that the re-

tained catheter is used instead of the surgical suprapubic invasion. Insulin, adjustment of the diet and waiting for the internist to recommend when the sugar retention justifies operation is the usual routine.

Carcinoma.—Twenty-four per cent of all prostatic enlargements are cancerous. Many recommendations have been made about the best way to deal with this most unfortunate malignant state; radical and heroic operations, such as resection of the floor of the bladder, and resection associated with the transplantation of the ureters, are not justifiable. Personally, I do not believe radium implantation either through the suprapubic opening into the prostatic substance, or up through the perineum into the gland proper has shown to be of lasting benefit. The cross-fire of intensive high power X-ray following prostatectomy I consider is the best treatment. The gland is removed as thoroughly as possible. The line of cleavage is at times most difficult to locate; peripheral invasion spells cicatricial barriers, so that but seldom is the gland enucleated "en masse". The post-operative treatment is the same as in the normal adenomatous overgrowths. Four or five days later the cross-fire is started; this is given every three days for four or five applications. The cellular destruction delays union. At times there is a marked hyperpyrexia due to the protein liberation, necrosis and absorption; this is transient. It happens that at the present writing we have eight such cases under observation; one operated on three years ago is at daily work, one due to a sharp recurrence uses the catheters with great relief, and one returns every six months for further intensivity. But few of the cases will observe rigidly the recommendations of the surgeon! One has the incipient metastases just beginning in the pelvic girdle and thigh bones; one has spinal involvement, and three write at intervals that they are enjoying life, able to work, void normally, but have increasing nocturnal demands. All specimens following operation are reported upon pathologically. The early malignant mitosis of central carcinoma is recognized only by serial sections. These cases should likewise be rayed following operation.

In those instances of very marked prostatic carcinoma, acute retention, cachexia, and metastatic uprisings, the suprapubic opening only is made, but even in these instances raying seems to control the inexorable vesical tenes-

mus and pain in the perineum better than any other measure. Opiates are justifiable and indicated, and should be given with a generous hand!

When we recall that "catheter life" offers four years more to live even under rigid aseptic precautions, and when we recall that the mortality in the larger clinics for the suprapubic operation for all classes of cases is about 6 per cent, it would appear from actual statistics that the best outcome the patient can select for his own comfort and prolongation of life is the radical operation, carefully and scientifically carried out.

Grace Hospital.

DISCUSSION.

DR. R. L. PAYNE, *Norfolk*:—I listened to Dr. Bryan's paper on the prostate with both interest and profit. On one occasion I had the opportunity of seeing Dr. Bryan operate on one of these cases, and to those of you who have not had that opportunity I want to say that you have a real treat in store for you, for his technical skill is almost equal to the erudite scholar. About twenty years ago or thereabouts the mortality rate of prostatectomy averaged nearly twenty per cent, and it was due to the fact that we did not know how to compete with the problem of pre-operative preparation. Today the technical problems of prostatectomy have become so simple that almost every operator is skilled in the enucleation of the prostatic gland. Therefore, the main thing that interests us is pre-operative preparation and post-operative care. I am inclined to believe that these two factors are fully four-fifths of our problems.

We handle our problems of prostatectomy in a little different way from Dr. Bryan. A good many years ago we began the irrigations of bladder cases with dilute hydrochloric acid, feeling that this kept down the alkaline urine and phosphatic deposits and believing that it tended to the rapid healing of the suprapubic fistula. In the last ten years we have had no reason to change our opinion of hydrochloric acid in simple dilutions of 1-250 or 1-500, and in looking over our cases we find that our total number of days of leakage after suprapubic prostatectomy is twenty-two. I feel like attributing that to the fact that the wound is kept clean with the acid. Bacteriological studies show that hydrochloric acid has no distinct bactericidal effect, but alkaline urine, as you all know, favors the growth of bacteria.

We do not use Hagner bags. When Dr. Francis Hagner first introduced his bags we adopted them, but I am inclined to think that they make the technic more difficult. It is extremely rare, in our experience, to see secondary hemorrhage. I do not recall, in my 123 cases, to have ever seen secondary hemorrhage, except in carcinoma, as late as the eighth day. I know other men have had it, and I expect to buck up against it some time. In the first sixteen cases of prostatectomy we had one death, a broker eighty years old, who died of pneumonia. We then ran over 100 cases without a death, and within the last few cases we have had two deaths from pulmonary embolism in the house at the same time. That is not as good as Hunt's series, in which he reports 176 cases with one death.

I do not believe that immediate total decompression

ought to be done in acute retention except where it is absolutely impossible to get into the bladder by any other method except suprapubic cystotomy. I believe that gradual decompression with an indwelling catheter (if necessary, a catheter put in with a trocar suprapubically) is better, for sudden relief of back pressure brings about acute edema of the whole urinary tract; and this results in anuria, which is the fatal thing in these cases. Therefore, bringing the urea nitrogen down to a reasonable point, as low as it will go, and then determining over a length of time, say a week or ten days, what the normal level is, provides for safety in operation.

DR. A. I. DODSON, *Richmond*:—I think all of us who listened to Dr. Bryan's paper realize that the methods described of preparing and caring for prostatic cases are largely responsible for the excellent results now obtained. I doubt if a series of men of the same age would stand any other operation with the same mortality that they stand prostatectomy. The only way that the mortality is going to be decreased further or the results following prostatectomy improved will be in earlier recognition and treatment. I was impressed some years ago, in attending Dr. Crowell's clinic in Charlotte (he was the first man in my memory to report a series of 100 cases without a death), to notice the number of men who came in and consulted him for frequency and having to get up at night; and I was impressed with the large number of cases he got before complete retention had occurred. Many of the men who report a large number of these cases with very few deaths get hold of a lot of patients before complete retention has occurred. I have found that with the proper care and attention these patients get along all right with an indwelling catheter. During the past month I did five prostatectomies. All of these patients carried an indwelling catheter except one, who had the suprapubic operation done six months ago. The other four had indwelling catheters, one for two months, one about six weeks, the others for about two weeks. They came to operation in good condition. One was operated suprapubically; the others by the perineal method. Other things being equal, I feel that I can get the patients out of the hospital sooner and with less discomfort by the perineal method. We had one patient who voided nearly all his urine on the fourth day after operation.

In addition to hypodermoclysis for fluid, we use five or ten per cent glucose solution by the method recommended by Matas and have found it very helpful.

DR. ———:—I should like to emphasize the indwelling catheter as contrasted with suprapubic drainage, i. e., the one-step operation as against the two-step operation. I understand that the mortality in suprapubic drainage is about twelve per cent. I have not had any trouble getting patients to stand the indwelling catheter if sufficient patience is exercised to get it in the proper position. Then, too, the patient with an indwelling catheter has a sense of well-being and is up and about, instead of being strapped to a tube (or the tube to the patient), and being in a rolling chair or kept in bed.

As to controlling hemorrhage, I feel that gauze packing is good. The use of ceanothin may be good. It has been used in other forms of hemorrhage, I understand, with satisfaction. The American Medical Association has not officially recognized it as yet.

We have had no difficulty, at the end of the ninth or tenth day, in removing the suprapubic tube, the packing having been removed probably on the seventh day, the wound strapped tight and an in-

dwelling catheter put in. The patients do not drain suprapubically at all and are discharged from the hospital about the fourth week. Of course, we all have our little hobbies, but I want to emphasize the importance of getting the patient up out of bed as soon as possible after the suprapubic drainage and keeping him up until the day of the operation.

THE MANAGEMENT OF URETERAL CALCULI.*

By A. I. DODSON, M. D., Richmond, Va.

The management of ureteral calculi is not a problem for the urologist alone. The method by which the stone is to be removed and the damage to be caused by its continued presence in the ureter is often determined by the attitude or advice of the physician who is first consulted.

The majority of stones formed in the kidney pelvis find their way into the ureter. Many of them pass out unaided, and others become lodged in the channel, an immediate and serious menace to the kidney.



Fig. 1.—Drawing of cystoscopic field showing stone presenting at the ureteral orifice. This patient's only symptom was painful and frequent urination.

The symptoms of stone in the ureter are chiefly those of ureteral obstruction and vary with the location, the duration, and degree of obstruction. I have observed one patient with the stone lodged in the proximal inch of the ureter whose pain was severe in the lumbar region and extended across along the costal margin; and one patient with the stone presenting at the ureteral orifice who complained only of painful and frequent urination (Fig. 1). It is true that a stone in the ureter can cause severe colicky pain, beginning in the

lumbar region and radiating along the course of the ureter and into the thigh or genitalia. There is also increased frequency of urination and blood cells in the urine. It is also true that the initial attack of colic is often the last, whether the stone passes out or not. The stone may remain in the ureter for months or even years, causing very little discomfort. In such cases the kidney is almost invariably destroyed. It is, therefore, very important that a thorough investigation be made following every attack

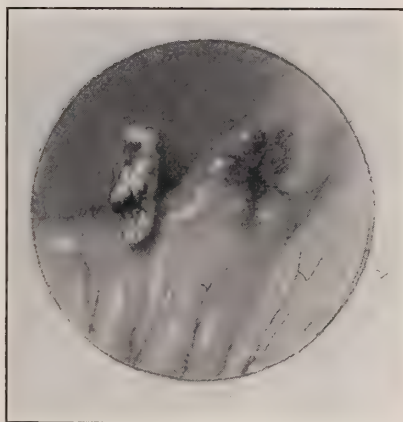


Fig. 2.—This patient entered the hospital immediately following a severe attack of kidney colic. Cystoscopy showed an edematous, congested ureteral orifice and a small calculus lying just to the right of the orifice. This stone later was passed from the bladder without difficulty.

of pain that may be ascribed to the genito-urinary tract. To treat palliatively cases of urinary frequency, pyuria, blood in the urine and an occasional attack of kidney colic, without insisting upon a thorough investigation to determine the source of the trouble, is often to permit irreparable damage to the renal tissue.

The diagnosis of stone in the ureter depends upon proper use of the cystoscope and X-ray, and, as a rule, is not particularly difficult. About 90 per cent of calculi can be demonstrated by a competent roentgenologist in a properly prepared patient. The addition of an X-ray catheter in the ureter, together with fluoroscopy, stereoscopic films or ureterogram may not only determine the presence of a stone but its size and location. With the exception of very small calculi, the non-opaque stones are readily demonstrated by the ureterogram.

During the past five years I have treated fifty-one cases of ureteral calculi. In four of these, so much damage had been done to the kidney that nephrectomy was necessary. In

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

eleven instances the stone was removed from the ureter by open operation. In thirty-two the stone passed from the ureter following cystoscopic treatment. Two patients passed the stones unaided (Fig. 2), and one refused treatment. Of the four patients whose kidneys had been destroyed, there were definite histories of discomfort referable to the kidney over a period of from four to seventeen years. The remaining forty-seven patients who had suffered a much shorter period of time, from one day to four months, had likewise suffered very little damage to the kidney. One of these patients had had four severe attacks of kidney colic during two months and when seen there was very definite dilatation of the kidney pelvis and ureter. In three instances the stone was first seen in the kidney pelvis and, following pyelogram or irrigation of the pelvis, passed down in the ureter and eventually passed out. There was a history of having passed stones previously in six cases; and on both sides in four cases. The stone was in the left ureter in twenty-one instances and in the right in thirty-one. In five cases the stone could not be demonstrated on the X-ray film.

In determining the method of treatment of ureteral calculi it is necessary to know the size and location of the stone, the presence or not of infection, the amount of obstruction being produced, and as nearly as possible the condition of the kidney above. Conservative treatment by means of the ureteral catheter, drainage and dilatation of the ureter may be safely prolonged for weeks or months, provided adequate drainage can be assured. Increased experience convinces us of the possibilities of the non-operative cure. By the use of the catheter healthy activity of the kidney may be established and infection adequately treated until sufficient dilatation can be secured for the passage of the stone.

The method I have used exclusively has been the passage of increasingly large catheters or bougies, or of multiple catheters or bougies, up the ureter and, when possible, beyond the stone. When I find it difficult to pass more than one catheter by the stone, I make an effort to pass a second one up to the stone, thereby dilating the ureter below it. I have found that the instillation of a few c.c. of warm olive oil helps materially in the passage of catheters by any obstruction. There have been a number of ingenious forceps, bougies and dilators invented to aid in the removal of stones from

the ureter. In my hands most of these instruments are cumbersome and difficult to insert. Many times they have failed to work after they are inserted, and I feel that in the majority of instances they unnecessarily traumatize the ureter, thereby making subsequent catheterization more difficult. The only instruments that have given me help have been the ureteral scissors and the Bransford-Lewis dilator, which I use merely at the orifice (Figs. 3 and 4). It is my belief that equally as much

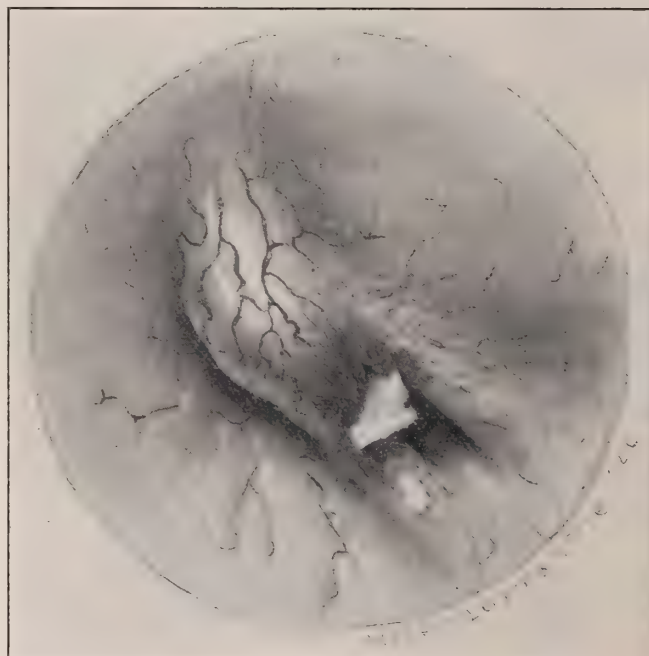


Fig. 3.—Drawing of a cystoscopic field showing marked bulging of the lower end of the ureter into the bladder resulting from impacted stone. An incision was made with scissors splitting the ureter for about half an inch. The stone was passed within 24 hours following this operation.

can be accomplished by fairly stiff, smooth catheters or bougies. I frequently find that it is helpful to reinforce the catheter with a small stilette. Once the catheter is passed by the stone, if the patient can remain in the hospital, it is much better to leave it there for from twenty-four to forty-eight hours. By this means the kidney will be drained and irrigation can be carried out for the treatment of infection. When this catheter is withdrawn it is well to immediately insert another larger catheter or two or more smaller catheters. Occasionally after two or more catheters have been passed by the stone, when they are removed the stone will be removed with them. I have had this good fortune on one occasion

(Fig. 5). A number of times I have noticed that the withdrawal of the catheter pulled the stone down in the ureter from one to several cm. In the fifty-one patients treated for ureteral calculi, this method only failed in four. In the remaining fifteen operative cases catheter treatment was not attempted.



Fig. 4.—Same ureteral orifice drawn two weeks later.

The decision to operate immediately rather than attempt cystoscopic treatment was because there was complete impaction of the stone and inability to pass catheters by the obstruction and the absence of function on that side. The majority of these operative cases were the earlier patients of the series. I be-

lieve with more experience and more faith in the method, some of them would not be operated upon if seen now. In a number of instances there was so much edema that the catheter could not reach the calculus and, in a few cases, could not be passed into the ureteral orifices. In such instances as this, plus a lack of demonstrable function of the kidney, I did not feel justified in prolonging the effort and advised immediate operation. Four of these patients operated upon, as previously mentioned, had the kidney removed. It is not always easy to decide before operation that a kidney is entirely worthless and needs nephrectomy, especially when there is a stone wedged tightly in the ureter. Because of the mere fact that a kidney is functionless at the time, it is not indicative that it will remain so. I have seen kidneys that have not secreted for weeks entirely recover function after removal of the obstruction. Occasionally sufficient pyelogram solution can be injected by the obstruction to determine if the kidney is a hopeless hydro-nephrotic sac. Also, if the catheter is left in place to drain the kidney pelvis, the evidence of an actively secreting kidney will be found within three or four days. Another method that is helpful in these cases is the determination of the degree of compensatory hypertrophy on the opposite side, as demonstrated by dye secretion. As a rule, one normal kidney with the other in good condition will excrete 30 to 35 per cent phenolsulphonethalein in two hours. If the opposite kidney has recently shut down, the function of this kidney will not be materially altered except in the occasional instance of reflex suppression of urine. On the other hand, if the opposite kidney has been functionless for a long time, the remaining kidney unless diseased itself, will have taken on, to some extent, its function, and we may find a dye output of 50 per cent or more from the normal side. In such cases if the opposite kidney remains functionless over a period of two hours, nephrectomy is usually the necessary procedure. It is my belief that, whatever method is used for removal of the stone, sufficient care is not taken

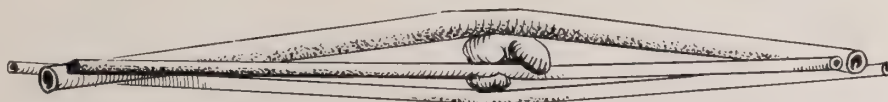


Fig. 5.—Sketch of a ureteral stone imprisoned between three catheters. This stone had remained impacted in the upper third of the ureter for several days. The three catheters were passed by the obstruction with considerable difficulty and 48 hours later when they were removed the stone came away in their grasp.

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in the after-treatment of these cases. Six of the patients reported in this series were treated for the second stone in the same kidney. Many other series of cases have been reported that show larger percentage of recurrences. The work of Hunner demonstrated without a doubt that ureteral strictures play a part in the formation of stones. The passage of calculi are also considered to be one of the causes of ureteral strictures. Furthermore, very few cases get rid of their stones without leaving behind

infection. I would, therefore, urge thorough check-up of all patients following the removal of ureteral calculi to determine that the kidney is free of infection, that the ureter is free of strictures and that other stones have not been left behind.

Medical Arts Building.

DISCUSSION

DR. HERBERT C. JONES, *Petersburg*:—I want to impress a few of the things which Dr. Dodson has so ably brought out with regard to the importance of a thorough examination. The last picture shows very clearly what can happen if the stone is allowed to remain in the ureter. Also, I think, as time goes on we are going to realize more and more that all kidney colic is not due to ureteral calculi. Only in the last two or three weeks I have heard doctors say that so-and-so had a case of kidney colic but the X-ray revealed no stone. That patient may or may not have stone; the colic may be due to a stricture or to a stone which will not show on X-ray examination but can only be detected by the cystoscope.

I have been fairly successful in removing stones by catheters. After leaving two catheters in for twenty-four to forty-eight hours, stones pass very readily. I think we are safe in investigating and manipulating stones in the ureter if they are small and the kidney damage has not been too great. However, if the kidney has been practically destroyed and there is a certain amount of obstruction, I do not believe in letting that patient suffer unnecessarily. It is the cystoscope, I think, that the medical profession is afraid of. Our work in this line, I think, will become more easy if every doctor could see a good number of them. Every patient does not make a great deal of fuss on a cystoscopic table, and it is not the dreadful ordeal that I think the average doctor believes it is. I was thoroughly impressed with this fact at the Post-Graduate Hospital in New York the past year. They would cystoscope eight or ten patients in an afternoon. Those patients would be cystoscoped, put on their clothes and go home on the street car. I think the family physician can do a great deal to help the urologist, for a great many examinations are needed to carry out this work and it is up to them to educate the patient to have these examinations.

DR. A. J. CROWELL, *Charlotte, N. C.* (by invitation):—There are a few things with regard to Dr. Dodson's paper I wish to say. First, having been a general practitioner for a number of years, I learned the importance of studying carefully symptoms and learned to interpret signs in arriving at a diagnosis.

I agree with Dr. Dodson that pain and frequency of urination in ureteral stone impaction are very significant. If the stone is impacted near the ureteropelvic junction, the frequency may not be marked, but deep percussion over the kidney will readily differentiate between the faker and one who is suffering with kidney colic. No faker can simulate the pain thus produced.

We treat our cases a little differently from the method described by Dr. Dodson. We stress ureteral anesthesia in cases where we experience undue difficulty in getting the eye of the ureteral catheter by the stone. Frequently the injection of a little hot oil, after anesthetizing the ureter, will allow the catheter to pass the stone more readily. We think it better to leave the retention catheter in two to four days (especially if the stone is located near the

ureteropelvic junction), because of the danger of pushing the stone back into the kidney pelvis through the multiplicity of catheterizations. This relieves pain, dilates the ureter, and enables one to lavage the kidney pelvis with antiseptic solutions if infection be present. The ureter should always be anesthetized before removing the catheter and the kidney pelvis filled with warm saline solution.

It is well to lubricate the ureter with oil as the catheter is withdrawn. If the stone fails to pass following such dilatation, the treatment should be repeated with a larger catheter as soon as the pain returns. There is a metallic dilator, gotten out by some instrument company, which we have used very satisfactorily in removing small stones, after the ureter has been dilated thoroughly. It is inserted until the blades pass the stone; the blades are then opened and pulled down until you feel the stone slip between the ribs or blades. The handle is then released and the cable pulled out. We have removed several stones in this way in the first attempt without using the retention catheter at all.

Out of nearly 400 cases of ureteral stone impaction since we devised their removal by cystoscopic manipulation, we have operated upon only about five per cent of them.

THE PREVENTION OF SYPHILIS.*

By DUDLEY C. SMITH, B. S., M. D., Charlottesville, Va.

The prevalence and seriousness of syphilitic disease make it one of the major public health problems. Stokes¹ speaks of the infection as "The Third Great Plague"; Surg.-Gen. Cumming² recently read a paper on venereal diseases which was entitled "Guarding the Nation's Health"; Osler,³ using mortality returns, post-mortem evidence and Wassermann reactions, concludes that syphilis is one of the foremost "killers of men"; and Vedder⁴ concludes that with one exception syphilis is the most prevalent of all serious infections. Many more similar references could be given, but all medical men know that syphilis is one of the most prevalent diseases, that it causes an incalculable amount of suffering, mental agony and economic loss. It is a constant danger, not only to the immoral, but to the clean-living public as well. Blaisdell⁵ determined that sixty cases of early syphilis which he followed exposed twelve hundred and twenty-seven people to the disease by direct associations.

Osler³ emphasizes the fact that vital statistics records do not accurately reveal the incidence of the morbidity and mortality caused by this infection. It is only when one studies the data given under other headings that the true situation becomes known. Think of the

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syphilis which is hidden by diagnoses of still-birth, malnutrition, hydrocephalus, cirrhosis of liver, apoplexy, softening of brain, aneurysm, aortic insufficiency, myocarditis, keratitis, periostitis, chronic ulcer, etc.

Figures made available during the past few years have shown an increase in the importance of the degenerative diseases. A goodly portion of these degenerative diseases are due directly to syphilis or indirectly to the necessary treatment of the infection.

It is indisputable that this problem justifies to its solution the application of money, energy and thought. The anti-syphilitic campaign presents to courageous, wise leaders a great opportunity for improving the public health of the population.

There is sufficient scientific information known concerning this infection to lead one to expect its eradication. The cause is the *treponema pallidum*. It is communicable by direct contact with an infected person or contaminated object. Clinical acumen, dark-field examinations and Wassermann tests make early diagnosis possible. Therapeutic measures are available which quickly make an infected person non-infectious. The reason no more has been accomplished is, of course, because of its relationship with sex and immorality. If it had been possible to handle the disease entirely as a medical problem, much greater progress would have been made. Consequently, it should now be made as nearly as possible a medical proposition. The efforts in this field of many sincere individuals have hindered instead of facilitated the campaign. The blunder has been in emphasizing the sexual and immoral aspects when medical effort should have been foremost. In other words, the moralist in attempting to help the sanitarian has often, as ironical as it seems, handicapped him. This infection has been so completely walled in and protected by secrecy, ignorance, prejudice and indifference that it could not be attacked properly by medical measures.

Syphilis is a disease, not a crime, nor is it the result of crime in many cases. A child was infected *in utero*, the mother was infected by her husband who was a physician, the physician acquired a chancre of the finger from a female patient with mucous patches in the mouth, the patient was infected by her husband who thought he was well before marriage of an infection the result of environmental influences in early life. Is this crime?

Sexual transmission has a physiological basis. The environment about the genitalia happens to be such as is conducive to the growth of the *treponema pallidum*.

When one begins to formulate a plan for the eradication of this disease, immediately the fact is presented that the entire population must be considered. The population can be divided into two groups: first, those who are susceptible to infection, and, second, those who are already infected. The latter group form the foci of infection. The objective is to prevent the transfer of the viable germ from the diseased individuals to the susceptible individuals. Measures relating to both of these groups can be used advantageously.

The main source of transmission is by sexual contact; this may be immoral or legal. It may be contracted by direct extra-genital contact and by intermediate contact by way of contaminated objects. The incidence of extra-genital transmission is a more important factor than was formerly thought. Congenital transmission is another source.

Measures pertaining to the well individual will be considered first. Universal continence except in marriage would be the most potent means of preventing the spread of this infection, but this desirable state seems far ahead. Every effort should be made by religious and ethical training to raise moral standards. The living of a virtuous life is the surest way to avoid syphilis. Most everyone will agree, though, that it is a smaller task, and quicker of accomplishment, to eradicate syphilis than to eliminate immorality.

Widespread education regarding the prevalence, cause, prevention and course of the disease is essential to successful prevention. An awakening of public opinion is necessary. When any disease receives universal publicity, it loses much of its ability to spread. If the population knew that about one in every three syphilitic infections were acquired innocently, the attitude would be improved. The teaching can be done by the educationalist, clergyman, newspaper editor and reporter, reformer and scientist.

It is worthwhile to note that many physicians need to be educated regarding means of diagnosing and proper methods of treating syphilis. The medical aspect of the problem is of such proportions that every specialist and general practitioner should be enlisted. These should acquire special knowledge concerning

the methods of locating and eliminating foci of infection. That foci are so numerous is the reason for enlisting the aid of all medical men. It is not suggested that all know how to do Wassermann tests, dark-field examinations, etc., but they should know the significance of the modern methods of diagnosis. More physicians with proper understanding of the principles and technique of treatment are needed. These should also be willing to do more charitable work in this field. More treatments for smaller fees would be an improvement.

The establishment of wholesome recreations and entertainment which will absorb leisure hours will decrease the tendency to sex adventure. Social and judicial measures which tend to decrease licentiousness should be rigidly enforced. All forms of prostitution should be vigorously combated. The two sexes should be punished equally. Chronic offenders are best handled by probation officers and industrial schools. When social conventions and legal procedures make the risk of promiscuousness liable to severe ridicule and punishment illicit relations will decrease.

The use of medical prophylactic measures has aroused much discussion. It has been definitely proved that the application of calomel ointment to the genitalia shortly after exposure will prevent the infection in the majority of instances. Intra-vaginal injections of treponemical agents before exposure is a successful prophylactic. Other measures classed as personal prophylactics are more or less effective. From a scientific point of view these measures can be classed along with the most successful preventives of disease. Ethically there seems to be no difference between personal prophylaxis and treatment after infection. Medically there is much difference. Widespread knowledge regarding personal prophylaxis for syphilis will not increase immorality. In the first place, fear of disease does not increase continence, and, in the second place, good habits based on fear is not morality.

The problem of eradicating syphilis as it relates to the infected individuals can be briefly stated. Discovering all these foci and making them non-infectious will solve the problem. When this is done, syphilis will be eliminated regardless of low moral standards.

Every genital and many extra-genital sores should be examined for *treponema pallida* as

soon as they appear. Facilities and training in diagnostic methods, as said before, should be more generally available. All cases of early syphilis should be isolated. Hospitalization is the best means of isolation, but not compulsory for intelligent patients. Personal instruction as to how the infected individual can prevent spreading the disease is important. More important is early vigorous treatment. A few injections of arsphenamine renders a syphilitic non-infectious and proper treatment should be continued until a cure is obtained. Proper treatment, associated with conditions agreeable to the patient, should be easily available in every community. The charges to the patient should be commensurate with his ability to pay. No case should be allowed to go untreated or to stop treatment before cured. By tactful handling most patients will continue treatment voluntarily; the others should be handled by legal measures.

Extensive use of the Wassermann reaction will locate many cases of infection. This test is not infallible, but it is thought by some to be the most important single laboratory procedure in medicine. The State Board of Health should be commended for making this test available to all physicians, thereby aiding in eliminating a communicable disease.

The early recognition and proper treatment of syphilis in pregnancy will prevent most hereditary syphilis.

Every case of syphilis diagnosed presents an opportunity for locating other foci of infection. By social service follow up, or better called "follow back" measures, other cases of syphilis are found. The "follow back" should include not only the family but all other associates.

Other measures dealing with the infected individual which are of some importance are: reporting of the disease to health authorities, promotion of health certificates for marriage, and improvement in housing and living conditions.

In concluding, it should be emphasized that syphilis is a formidable enemy of the race, entrenched behind secrecy, ignorance, passion, prejudice and indifference, but, by means of an awakened public opinion and an energetic well-trained medical profession, an offensive is being launched which will win the campaign.

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DISCUSSION

MAJOR H. L. FREELAND, M. C., U. S. A., *Richmond*:—I should like to emphasize one thing the speaker brought out, and that is that we should consider every patient a potential syphilitic in making our diagnosis. That may be putting it rather strongly, but I had a personal experience early in my medical career which made me throw away any scruples I had to the contrary. A patient was received in the hospital, mild-mannered, soft-spoken, with every indication of being a lady, and probably she was. The case, as I go over it now, gave every indication of being one of syphilis; but as a young intern, it never occurred to me that she might have syphilis. I conveyed my feeling to a senior intern, who probably realized my feeling, and he said: "Probably you have a case of syphilis." To my great chagrin—for I did know better—I realized that it was syphilis. Not every case shows as typical symptoms as did that one, but most often they have some one symptom or several symptoms which will lead us to the diagnosis.

Experience in the Army has standardized the Wassermann for us.

DR. ROY K. FLANNAGAN, *Assistant State Health Commissioner, Richmond*:—I can not let this paper pass by without acknowledging my pleasure in having heard it, for I think this society is to be congratulated upon having the prevention of syphilis presented in all of its phases in such a concrete and satisfactory way. Little remains to be added in its discussion except to emphasize several points of it. Every physician should suspect syphilis in his patient. Everybody is susceptible to it; it does not mean any particular reflection upon anybody to make a Wassermann. It should be done in every case. In fact, I had it done upon myself recently when I was sick, not only blood Wassermann, but spinal fluid. Every doctor that practices for a number of years is laying himself open to infection. A doctor is not doing his patient justice unless he considers syphilis among the possibilities. We have to get down to modern methods. We know a great deal about this disease that we did not know in days gone by, and we should make use of this knowledge. In every city of any size in the State of Virginia there are clinics, generally good clinics. In many cities they are under the local boards of health, but, whether under the boards of health or not, their doctors would be delighted to have the general profession come in and observe, for instance, the method of administering arsphenamin. Many of you doctors have not acquired a thorough knowledge of the technic of administering arsphenamin. It is something you ought to know, for you can not with impunity chuck something into the veins of patients without knowing the technic. I commend these clinics, which were established during the war by my predecessor, Dr. Brumfield, whom I notice in the audience. He is to be congratulated for developing these excellent clinics and making it possible for the poorest and worst type of infected persons to get treatment. Many doctors in the State do not know about these clinics and do not regularly administer this drug. I hope that a more

general interest in the subject will be aroused by the reading of Dr. Smith's paper and that it will be widely circulated, for the number of sufferers from syphilis is large, and the only way it can be controlled is by the general practitioner recognizing the disease and giving modern treatment until the patient is not only symptomatically well but actually well.

DR. W. B. McIWAINE, *Petersburg*:—Speaking of the prevention of syphilis, I want to bring out the point that it is largely in the hands of the general practitioner. I will cite one case. A father brought his child to me, and the child was apparently well. He brought the second child to me eighteen months later, and that child had a definite case of congenital syphilis. When I informed the father, he was thunder-struck, of course. He told me that he had had syphilis before marriage, but had been told he was cured and could not transmit it to his children. If that man had been told that he should have repeated tests, even after apparent cure, and that as soon as his wife became pregnant she should have a Wassermann made, that child could have been saved from syphilis.

DR. ST. GEORGE T. GRINNAN, *Richmond*:—In the hospital in Richmond we have had a practice for a long time of using sulpharsphenamin in syphilitic children—not intravenously, but hypodermically. The smallest dose on the market is .075 grammes, which is easily used in two centimeters of water. That is given for about a week, then a rest for two weeks, then it is given again. We have been able to get negative Wassermanns in these children after treatment. In the city of Richmond now the children's syphilitic clinic, of which there are a large number in certain sections, are gathered together, and the nurses that we train in our hospital go there and we can clean up whole districts which would otherwise result in syphilitic children. It used to be supposed that it would take three or four years and prolonged rubbing, but that idea has been discarded. We can use either the Wassermann test or the Kahn test.

DR. ———:—I think we should take account of our own stock sometimes, inasmuch as we all see patients sometimes with paresis or some degenerative condition of the heart or some other part of the body, and the patient says: "I stopped treatment because Doctor So-and-So charged me so much for the treatment that I could not go on." I think if you would make your fee as small as possible and consider the ability of the patient to pay, you would be aiding the health of your community.

Another point is that I think we should endeavor to learn more about this disease. It is said, "If you know syphilis, you know medicine." We have had children brought to us, of whom the family doctor said that he did not know children could have syphilis so young.

DR. SMITH, *closing the discussion*:—I like to think of this as a purely medical problem. Of course, the other side has to be emphasized, too; but that is not our business; that is someone else's business. If we make it a purely medical problem, we can do more with it. The general physician's threshold of suspicion (quoting from Stokes), in regard to this disease, should be increased. Many physicians have a horror of thinking about this disease and are slow to suspect it in their patients. The threshold of suspicion should be increased. I would not be willing to agree with the statement that sulpharsphenamin

min alone can be relied upon for cure of congenital syphilis. Again, the technic of medication, while not simple, is simple enough for the average physician to handle, and I think it would be preferable for the general practitioner to handle it. Of course, the venereal disease clinics do a lot of good, too; but I want the higher element of society to get the benefit of this knowledge just as much as the lower element. The private patient should be suspected just as much as the charity patient. Treat them and charge them for it, and charge the charity patient what he can pay and have him continue treatment. In that way the foci of infection will be eliminated.

CORONARY OCCLUSION—CLINICAL OBSERVATIONS.*

By T. DUCKETT JONES, B. A., M. D., University, Va.

Little, perhaps, did Herrick¹ realize the far-reaching results which would follow his report in 1912 of the clinical features of sudden obstruction of the coronary arteries. To him goes the distinction of being the first American clinician to call attention to a series of symptoms and findings, today so widely known, and of such an impressive nature as to make us wonder that the syndrome was not long ago recognized as a distinct clinical entity. The past decade has evidenced many productive contributions, which give us a very definite clinical picture, and a wealth of detail concerning the condition. I do not mean to convey the idea that the condition had entirely been overlooked previously, for Von Leyden, Marie Huchard, Krehl, Dock, Osler, and Mackenzie presented unmistakable pictures, these usually being included under reports or discussions on angina pectoris. While the condition has not been an entirely neglected one, it has nevertheless been a comparatively short time since the medical profession has been generally enlightened, or rather since the syndrome has been popularized.

To review the clinical syndrome may seem unnecessary, but doubtless by repetition alone will we finally become so familiar with this or any other entity, that we subconsciously consider it as a possibility in any unusual or suggestive case. The variations are many, and it is the object of this short discourse to present merely very broad aspects with reference to some of the more important differences. Acute or sudden occlusion of a large coronary vessel, resulting as it does in infarction of the heart muscle, will be considered for the most

part. Hence, thrombosis is the main consideration, though an occasional embolic case occurs, and blocking of the coronary orifices by syphilitic aortitis gives the same picture. This is distinct from those cases having complete gradual closure with slight, if any, change in the myocardium, and with little disturbance of function.

THE CLINICAL SYNDROME

Symptoms must vary according to the suddenness, the completeness, the size and location of the artery, the collateral circulation, and the area functionally lost, as stressed by Herrick.² Occlusion of a large vessel only, results in the following chain of events:

(a) *Pain*. The pain is of extreme severity, coming on often out of a clear sky, even waking the patient from sleep. In others it follows slight or ordinary exertion, a moderately heavy meal, an operation, or some unusual emotional strain. In many of the cases there is a previous history of angina pectoris over a period of months or even years, while in others the patient may be felled who has never had any symptom referable to his cardiovascular system. Thirty-two of White's³ sixty-two cases had angina pectoris prior to the coronary accident. The character of the pain is striking, being described variously as constricting, pressing, boring, burning, sharp, dull, or cramp-like, and it may or may not radiate to the back, neck, shoulders, or down one or both arms. Not uncommonly it has been described as status anginosus, or status gastralgicus, when epigastric in location, as is common. There is a sense of impending death, something entirely different from anything the patient has ever experienced, though he may even have had angina pectoris. Rarely is the pain intermittent, but constant, lasting for hours, even days, unrelieved by nitrites or rest, and often even by massive doses of morphia.

(b) *Shock*. Concomitant with the pain, there is as a rule a pronounced degree of shock, with prostration, a fall of blood pressure (often below 100 mm. of mercury), and a suppression of urine.

(c) *Dyspnea*. Occasionally dyspnea is the only initial symptom, pain being slight or absent. It is associated, of course, with the myocardial damage and insufficiency. At times, dyspnea does not occur until the pain has begun to subside, but early appearance is

*From the Cardiac Clinic, Massachusetts General Hospital.
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the rule, coming on with the other signs of failure.

(d) *Pulmonary Edema.* Pulmonary edema always occurs to some degree and as a rule is extensive. The rapid appearance of pulmonary edema should make one think quickly of a coronary accident.

(e) *Appearance.* The peculiar color and appearance is typical. The face is ashen-gray in color, the features pinched and evidence seen of intense suffering and mental anguish. The skin is covered with cold perspiration. As failure develops, cyanosis, enlarged liver, albuminuria, and subcutaneous edema occur. Cheyne-Stokes respiration is usual during the course of the resultant myocardial insufficiency.

(f) *Heart.* The cardiac impulse is diffuse and weak, the heart sounds faint and often indistinct; gallop rhythm may be present, a more or less distinct systolic murmur may be heard, and many cases show some abnormality of rhythm. Of these arrhythmias, the commonest are premature beats, auricular fibrillation, auricular flutter, heart block, and paroxysms of tachycardia.

(g) *Electro-cardiograms.* Electro-cardiograms have been of distinct help in determining the true nature of these irregularities, often impossible to be unravelled clinically. Likewise, they have proven to be of value in the diagnosis of difficult cases. I have recently reported a case showing atrioventricular rhythm, with nodal bigeminy at times, and in addition to this also idioventricular rhythm, and on occasions an ectopic auricular tachycardia. It does not seem surprising that such irregularities occur, dependent upon interference of the blood supply either to the sino-auricular or auriculo-ventricular nodes or main branches of the bundle of His, or as a result of the localized infarct.

Symptoms the Result of the Myocardial Infarct. Fever, usually 100° to 102° , associated with a leucocytosis (12,000 to 25,000) as a rule are present, and vary with the extent of infarction. McNee⁴ considers a localized pericardial friction rub, in association with a suggestive history, a pathognomonic sign. When present, it is of extreme importance, but its absence cannot be regarded as any evidence against the diagnosis, since its presence depends upon too many varying factors. Wearn⁵ found it present in two of nineteen cases; Hamman⁶ in one of ten; Wolff and White⁷ in nine of nineteen; and Longcope⁸ in no case

of his sixteen. Embolic phenomena occur also, being dependent upon the infarct. They were present in two of the nineteen cases of Wolff and White⁷. Cardiac aneurysm with rupture and sudden death may follow—weeks to years later.

DIFFERENTIAL DIAGNOSIS

Few clinical pictures give the striking syndrome which typical cases of acute coronary occlusion show. However, as in most conditions, no absolute rules can be formulated, and puzzles will continue to present themselves. I recently saw an autopsy performed on a man 63 years of age whose history and findings were almost identical with the classic picture. The only differences were that his pain was entirely in the back, the fall in blood pressure was all but instantaneous, and he had a sensation of pressure low in his perineum. Autopsy revealed the rupture of a small aneurysm of the left common iliac artery with retroperitoneal hemorrhage. Possibly with the most careful analytic study, some diagnosis other than acute coronary occlusion might have been made, yet the mass of evidence was in favor of its occurrence. Such cases are rare, but should make us pause in too quickly diagnosing cases, though at first glance they may seem very evident.

1. *Angina Pectoris.* Angina pectoris is by far the most frequent differential problem, and yet there are certain criteria which, if followed carefully, will render the correct diagnosis possible. The pain of angina is of short duration, relieved by nitrites or rest, not associated with a fall but rather a slight rise in blood pressure, and the pulse rate is not markedly altered. The signs of acute failure do not follow closely as is the case in cardiac infarction, and, in fact, the two present rather converse pictures. Border-line cases are disturbing. The diagnosis is difficult in some cases which we designate clinically as coronary sclerosis. These cases show, as a rule, peripheral arteriosclerosis, cardiac enlargement with or without hypertension, symptoms referable to lowered cardiac reserve, and usually electro-cardiographic abnormalities, such as intraventricular block or T-wave changes. Substernal or precordial pain on exertion is common, and, when individuals with such syndromes develop failure, we must not forget the possibility of coronary occlusion as a

factor. The vessel occluded may be small or the process so gradual in onset that many of the cardinal symptoms are absent. Wearn⁵ has stressed the difficulty of making the diagnosis when it occurs in cases with myocardial insufficiency, and believes that in such cases with arteriosclerotic disease, any sudden aggravation of symptoms should arouse suspicion. In most instances it occurs in late adult life, since it is associated with sclerosis of the coronary arteries. It is uncommon before 50 years of age, and rare below 40, though Jamison and Hanser⁹ recently reported its occurrence in a youth of 18 years.

2. *Cholelithiasis*. Cholelithiasis may often present its difficulties of differentiation. Faulkner, Marble, and White¹⁰ have given a good comparative study of the two groups. The chief diagnostic points in favor of cholelithiasis are the predominance in this group of females, often under 40, a history of similar attacks over relatively a long period of time, and radiation of the pain to the back, if it radiates at all, rather than upward and into either arm. Supporting coronary occlusion, they found its predominance in males over 50, a history of angina pectoris, the feeling of constriction never experienced in cholelithiasis, the frequent upward radiation of pain, often into the arms, and electro-cardiographic changes.

3. *Perforated Ulcer*. Perforated gastric ulcer will less often prove confusing. In such cases, the age of the patient, history of angina pectoris, or previous digestive trouble, radiation of pain, presence of signs of cardiac failure, and local abdominal findings of perforation should render a diagnosis possible.

PROGNOSIS

Little need be said concerning the mode of death. Fulton¹¹ has recently discussed this and believes there is good reason to suppose that ventricular fibrillation is the most common cause of sudden death, considering also heart rupture, pulmonary embolism and heart block. Many cases die as a result of myocardial insufficiency at varying intervals after the onset. There are no hard and fast rules. Death may occur instantaneously, or, following a stormy course and long convalescence, the patient may survive a few years and return to his normal status. It is this latter group which makes it desirable to establish a correct early diagnosis, for it seems fair to sup-

pose that some avoidable accidents might be averted, and the prognosis rendered more favorable. Of the 160 cases included by Mackenzie¹² in his monograph on Angina Pectoris, eighteen had undoubted coronary occlusion. Of these eighteen cases all are dead but one, averaging three years after the onset, with wide variations. Of the nineteen cases of Wolff and White⁷, the duration of life was determinable in eighteen: seven hours or less in four cases; seven days or less in four; several days or less in seven; four to five months in one; eight months in one; and five years in one. Levine¹³ has reported five cases that recovered and were restored to previous activity without trouble. Of the sixty-two cases recently cited by White³, thirty-two are dead, living an average of fifteen and one-half months after the accident, with limits between a few hours and seven years; thirty are yet alive, averaging twenty-four months. Poor heart sounds and congestive failure added gravity of prognosis to this latter series, and pericarditis was more frequent in the cases that died. The following clinical findings, occurring soon after the accident, render the prognosis favorable:

1. Defervescence of fever and leucocytosis;
2. Rise in blood pressure; 3. Improvement of heart sounds and electro-cardiographic findings; and, 4. Decrease in congestive failure.

TREATMENT

Prompt recognition of the accident may promote recovery by emphasizing the value of prolonged rest. This should be carried out over a long period of time (at least four weeks in bed), despite marked clinical improvement and the desire of the patient to return to activity. In those cases responding to therapy, the period of rest greatly influences the functional result. Massive doses of morphia to relieve the pain and aid in rest are essential. Digitalization is an undoubted aid in every case.

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DISCUSSION

DR. T. DEWEY DAVIS, *Richmond*: I was very much interested in this paper by Dr. Jones, and there are two points I wish to emphasize in connection with coronary occlusion. One of these is that the pain is not necessarily acute and agonizing in the early stages. Illustrative of this, I had a patient who was taken with a typical attack one evening soon after dinner. (He was off on a fishing trip). He had all the symptoms, pain, sense of constriction, etc., but the pain was not agonizing; and he got by by taking a little soda and vomiting a few times. The next morning he drove his car fifty miles to his home. After reaching home the pain continued, and he was given three hypodermics of morphin (each time a quarter of a grain, he said) for relief. His doctor saw him about two P. M. He had then some fever and leucocytosis. He improved very much, and I saw him about six weeks later. At that time he had the peculiar finding in the electrocardiogram. It is hard to describe it without an illustration, but it is a peculiar convexity of the T-wave which is very characteristic, according to Pardee. I think it is of great importance in the diagnosis of these cases. The two points are that the pain is not necessarily agonizing and may not give that sense of early impending death, and that the peculiar configuration of the electrocardiogram is of great importance.

A REPORT OF TWO CASES OF PERFORATION OF DUODENAL ULCER IN THE HOSPITAL.*

By J. COLEMAN MOTLEY, M. D., F. A. C. S., Abingdon, Va.
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When, one year ago, a prominent surgeon read a paper before this Society, advocating the medical treatment of peptic ulcer, his conclusions were, to some of us, more spectacular

than convincing. However, the paper and the discussion which followed served to focus our attention on a very important subject, and caused us to make a mental audit, as it were, of our present methods of treatment. The result was good.

It is not my purpose to detract anything from the credit that is due the medical men for the very excellent work which has been done in the management of peptic ulcer. It is undoubtedly true that many ulcers heal under medical treatment, and some get well without treatment. Even with the cases which come into the hands of the surgeon, the co-operation of the internist in the pre-operative and post-operative management is invaluable. Without any purpose of being controversial, it has seemed to me that there are certain types of ulcers and ulcer complications which place this lesion rather definitely in the field of surgery.

Lahey¹ has, I think, classified rather conservatively the cases considered unsuitable for conservative treatment. They are as follows: "Those with any question of malignancy; those, of course, with perforation; those in which symptoms cannot be relieved in seven days; those in which occult blood cannot be made to disappear from the stools in fourteen days (eliminating blood from other sources); and pyloric stenosis." I agree with this classification except that it is my own belief that an ulcer which has resulted in a frank hemorrhage should always be treated surgically as soon as shock and acute anemia can be overcome. If at all safe and practical, such an ulcer should be destroyed at the time of operation. In addition to this, there are many individuals who for economic reasons cannot afford the long stay in the hospital which a medical cure sometimes involves.

Meyer, writing in the *Bulletin of the Chicago Medical Society*, has reported a series of sixty-two cases of acute perforation of gastric and duodenal ulcers, proved at operation. Every one of these patients was a male; 60 per cent of them were under 40 years of age, and 32 per cent were 30 years of age, or younger. In other words, the ulcer victim is the breadwinner of the family.

It is probably true that duodenal cancer is a rare condition. Many clinicians refer their gastric ulcers to the surgeon and treat medically the ulcer on the duodenal side, on account

*Read before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

1. Surgical Clinics of North America, 1926, 6, 698.

of the relative immunity of the latter condition to malignant changes. However, Eusterman, Berkman and Swan² report fifteen cases of primary carcinoma of the duodenum, diagnosed at the Mayo Clinic. There is also quite a general impression prevailing among the medical profession that a patient rarely bleeds to death from a duodenal ulcer. It is my own belief that this tragedy occurs much more frequently than one would be led to believe from reading the current medical literature on the subject.

There is another very interesting circumstance connected with duodenal ulcer which has an important bearing on this subject. Men who have had large experience in the operative treatment of ulcer rarely find an uncomplicated duodenal ulcer as the sole intra-abdominal lesion. The lymphatic vessels supplying the duodenum, the gall-bladder and the appendix are very intimately connected, one with the other. It is fairly safe to say that a majority of chronic duodenal ulcers are complicated by a diseased appendix or by cholecystitis. Sometimes all three conditions are present at the same time. Not infrequently, one finds crippling adhesions between the duodenum and the gall-bladder and liver, as a result of a penetrating duodenal ulcer. All of these associated lesions are admittedly surgical. When the patient's ulcer is treated by operation, this additional pathology can be cared for at the same time and through the same incision. While treatment of such a case medically may perhaps cure the ulcer, it will not cure the patient; and the symptoms due to the concomitant lesion will remain to torment him still.

During the past March, I had two cases of peptic ulcer under my care at the same time, both of which perforated in the hospital. There were certain circumstances connected with this occurrence which made such a dramatic impression on me that I have thought it worth while to put these cases on record, as a warning of what might happen to such a patient while waiting for a medical cure.

Case No. 12332: Male, age 39; admitted February 23, 1923, complaining of stomach trouble for 3 or 4 years. Bright's disease, stomach trouble, typhoid fever and pellagra occurred in the family history. Tonsillectomy was performed in 1919 after a long history of tonsillitis and quinsy. Otitis media had con-

tinued since tonsillectomy. He had had a desperate illness with typhoid fever 12 years before his first admission. Earlier still, he had had scarlet fever and pneumonia; and since had had influenza. Had drunk much liquor. Had lost 30 pounds on second admission. His immediate complaint was the typical ulcer history, the periods of stomach discomforts occurring now more frequently, and for the past 60 days he had been free only about two days. Had vomited food eaten two days before. Not certain that stools had been black or bloody. Vomiting at periods for a year.

Examination essentially negative, except the following point: Bilateral deafness, worse on right side; marked pyorrhea and caries; pulse 80; blood pressure 130/80; temperature 98.2. Abdomen moderately distended, especially the epigastrium. Indefinite peristaltic waves, left to right across epigastrium. Tenderness over stomach. Hemoglobin 65 per cent. Normal white and differential. Normal urine. Stool not reported by laboratory. Fractional gastric analysis: High curve; total acid 130; free acid 75.

Clinical impression: Acute peptic ulcer with pyloric obstruction; chronic appendicitis; chronic otitis media; chronic rhinitis; oral sepsis.

Roentgenological report: Lesion in first part of duodenum, involving the pylorus, producing marked obstruction. Stomach markedly dilated.

The patient was advised of his condition and of the necessity for operation. He left the hospital to arrange his domestic affairs. He got as far as a down-town hotel, when he had an attack of severe abdominal pain and vomited all night. He was re-admitted the following morning. He was then in terrific pain. His abdomen was board-like in its rigidity, all over. His temperature was 102. Leucocytes 20,200. The diagnosis of perforated ulcer was made without hesitation, and he was immediately operated upon.

A large amount of brown fluid was found in the cavity. A large, indurated ulcer, with a perforation in its center, admitting the tip of the index finger, was found just outside the pyloric ring. The stomach was much distended. The perforation was sutured, reinforced with an omental graft, and a posterior gastro-enterostomy was done. Proper peritoneal toilet and drainage was provided.

² Annals of Surgery, July, 1925.

The patient made an uneventful recovery and was free of ulcer symptoms upon his discharge.

The second case (No. 12384) was a man of 30 years, admitted February 25, 1926, also complaining of stomach trouble of two years. On previous examination, chronic tonsillitis, cardiac hypertrophy with hypertension, and chronic appendicitis had been the diagnosis. For two years, at least, before admission, the patient had been complaining of rather typical pains limited to a small spot in the epigastrium, of a gnawing character, relieved by eating simple foods and by soda, and characterized by periodic exacerbations and remissions. No vomiting and no black stools.

Examination was without interest except as follows: Enlarged, diseased tonsils. Temperature normal. Pulse 74. Blood pressure 114/72. Abdomen not distended, soft and relaxed. In the mid-epigastrium, slightly to the right of the median line, there was slight tenderness on firm pressure. There was minimal tenderness, also, at McBurney's point, without muscle spasm.

The impression from the examination was pretty positively in favor of peptic ulcer, though it was realized that chronic appendicitis with pylorospasm and hyperacidity could produce the same train of symptoms. Tonsillar infection was present.

The blood and urine were negative.

Fractional gastric analysis showed a high curve: total acid 134; free acid 86. Stools were negative for occult blood.

The roentgenological examination failed to reveal any filling defect in the stomach or duodenum, or any obstruction at the pylorus. The appendix was visualized, adherent along the mesial side of the cecum, and tender. It was the opinion of the roentgenologist that the stomach symptoms could be accounted for by the appendix.

The patient was a dentist. He was advised of the doubt in regard to a peptic ulcer, and was advised to accept an exploratory incision that the doubt might be cleared up as his appendix was removed.

Upon re-admission to the hospital on March 10, 1926, this advice was twice repeated; and again after he was on the operating table he was advised to have the upper abdomen explored. He persistently declined the advice, believing that the appendix was the whole trouble.

At operation, a definitely diseased, adherent appendix was found lying high up behind the cecum, and there were numerous bands of pericecal adhesions, producing partial obstruction. These bands were released and the appendix removed without incident. The wound was closed without drainage.

His post-operative course was normal until the following morning, when he had temperature of 103.4, with what he called gas pains. At this time a mild epidemic of influenza was prevalent in the community, and there were cases in the hospital. A medical associate expressed the opinion that the complication was influenza. By the next morning, the patient had developed an effortless vomiting of large quantities of green fluid without nausea. The upper abdomen was greatly distended. His leucocytes were 9,400, with 67 per cent polys.

We hoped, therefore, with the normal blood picture and the characteristic epigastric distention, that the condition was acute gastric dilatation. We resorted to frequent lavage.

It was not until afternoon of the second post-operative day that we began to realize the tragic significance of his symptoms, and to suspect that he had a perforated ulcer. By this time, his condition was so extreme that operation was considered useless. He died early the following morning, the third day after operation.

Autopsy revealed a small ulcer on the posterior surface of the duodenum, which had perforated into the pancreas.

It is with considerable chagrin that one stands before this Society and admits that an ulcer perforated with the patient in the hospital under his very eyes, and went unrecognized for twenty-four hours. We offer no excuses; but perhaps there are some mitigating circumstances: the negative X-ray findings; the prevailing epidemic of respiratory infection; the normal white blood count; and, finally, the very unusual circumstance of a peptic ulcer perforating with the patient lying quietly in bed, with a practically fasting stomach for thirty-six hours.

CONCLUSIONS

1. While peptic ulcer is a chronic lesion which may be treated medically, there are certain types and certain associated complications which would cause one to consider surgical operation as the therapy of choice.

2. When one undertakes to cure a peptic ulcer by medical management, the patient should be informed that he may possibly develop a cancer, he may bleed to death, or he may have a fatal perforation. The latter calamity may occur even while under treatment in a modern hospital.

3. While the X-ray is a very valuable aid in confirming the diagnosis of peptic ulcer, yet a diagnosis which has been made on the strength of a positive ulcer history should not be abandoned on account of negative X-ray findings.

DISCUSSION.

DR. MURAT WILLIS, *Richmond*.—Mr. President and Members of the Medical Society of Virginia:

I was the surgeon who appeared before this Society last year and advocated giving every case of uncomplicated duodenal ulcer an honest trial with medical treatment. Although my presentation was more spectacular than convincing to my friend, Dr. Motley, I am glad he has returned to the subject and given me an opportunity of again dwelling on certain facts with his paper as a basis.

When one is asked to discuss a paper, the conventional thing to do is to utter a few platitudes and let it go at that. My inclination would be to do this were it not for the fact that this is a far-reaching and important subject and one that should be discussed without fear or favor. I appreciate Dr. Motley's desire not to be controversial, but how is one to avoid controversy when opinions are at such variance? One would assume from the essayist's introduction that I had advocated medical treatment in peptic ulcer of the stomach and duodenum regardless of all other considerations. This is not a fact, because in my paper and its publication I gave the following indications for surgery in this disease, and will now quote from my paper: "In chronic ulcer of the stomach surgery is probably safer and preferable to medical treatment; one of several operations may be done, depending upon the location of the ulcer and skill of the operator; such, for example, as excision of the ulcer, with or without gastro-enterostomy or partial gastrectomy. In duodenal ulcers, surgery is indicated in the chronic type that has resisted proper medical treatment; in cases with pyloric obstruction and in all instances of perforation; using such operations as excision of ulcer, pyloroplasty, etc." It is apparent from this that I outlined the type of cases in which I felt surgery should be recommended.

The doctor has reported two perforating cases of duodenal ulcer with a view of emphasizing the dire consequences of medical treatment. I advocated operation on gastric ulcer and on duodenal ulcers resisting medical treatment or those in which pyloric obstruction existed. Dr. Motley's first case was an untreated duodenal ulcer resulting in pyloric obstruction. Even our medical friends would advocate surgery in such a case.

It is the late stage of the untreated disease. It is the type which we used to diagnose before the days of gastro-intestinal X-ray. It is the type for the relief of which gastro-enterostomy was first devised and in which it is so satisfactory if you cannot do a satisfactory pyloroplasty. This late type of complicated duodenal ulcer is about as rare in the average clinic today as the eighty pound ovarian cyst.

His second case was also untreated and undiagnosed. It is quite evident that these two very strik-

ing cases do not conflict with my recommendation of medical treatment in all uncomplicated duodenal ulcers. Neither of his cases got it. The only way I differ with Dr. Motley in his first conclusion is, instead of stating that peptic ulcer *may* be treated medically, I would substitute *should* be given a conscientious medical trial. In his second conclusion, and I quote him verbatim: "When one undertakes to cure a peptic ulcer by medical management, the patient should be informed that he may possibly develop a cancer, he may bleed to death, or he may have a fatal perforation. The latter calamity may occur even while under treatment in a modern hospital."

I feel it is well that the internist should emphasize to every patient who is going to be treated medically these various dangers, but, if the patient is to choose between medicine and surgery, I believe in all fairness it would be well for the surgeon to be equally frank when he recommends surgical treatment. He has asked the internist to paint the dire consequences of cancer of the duodenum, the rarest of all complications. He has asked that they point out the possibilities of perforation and hemorrhage. What should the internist ask us, as surgeons, to tell the patient when we advise operation in order that the victim of the disease may be properly oriented? (1) That there is a primary operative mortality of from 2% to 10%, depending upon the judgment and surgical ability of the operator. These deaths alone amount to more than those from cancer of the duodenum, hemorrhage and perforation combined; (2) That, of those surviving, it is safe to predict that from 5% to 35% who have a gastro-enterostomy will have a gastro-jejunal ulcer, this second state infinitely worse than the first; (3) That they can also have hemorrhages, as I have seen them following gastro-enterostomy; (4) They can also have a perforation from the primary, recurring, or gastro-jejunal ulcer; (5) They occasionally have a post-operative obstruction; (6) They should also be told that these ulcers are frequently multiple, and it is not uncommon for the surgeon to overlook one or more, and that this is especially true where a gastro-enterostomy is the operation of choice. They should also be told that many of these ulcers are located in dangerous and rather inaccessible portions of the duodenum.

Dr. Motley states that there are many individuals who, for economic reasons, cannot afford a long stay in the hospital which a medical cure sometimes involves, and, for this reason, surgery should be advised. Of all the mistaken economies the worst is submitting a patient to radical surgery on his stomach before giving him a medical trial. It is the most uneconomic I know of for the patient.

I wish I could believe that a posterior gastro-enterostomy so simple of execution in the hands of an experienced skilful surgeon would solve the problem of peptic ulcer. It is unthinkable that a profound constitutional disease with local manifestation, of which we know nothing of its etiology or course, could be solved by so simple a mechanical surgical procedure. I assure you, gentlemen, this simple surgical procedure does not occupy the same relationship to peptic ulcer as does quinine to malaria. To do a routine gastro-enterostomy in this disease, knowing so little of its etiology or life history, reminds me of the old story of the doctor who, when he did not know what else to advise for his patient, suggested that he be thrown in fits as he was hell on fits.

In conclusion, I can but repeat what I said last year that "both surgeon and internist should take a broader view of the problem presented by gastric

and duodenal ulcer; it does not appeal exclusively to one or to the other, but demands the harmonious co-operation of both these practitioners of the healing art if we are best to serve our patient's needs."

DR. W. A. BRUMFIELD, *Blacksburg*:—To illustrate the suddenness with which perforation may take place in some of these cases, without regard to previous history, I should like to tell the story of an incident that occurred in the student body at V. P. I. Some of you may know that I am somewhat of a clearing house for the students there, to excuse them from drill, give them first aid, and direct them to physicians and surgeons if they need medical or physical attention. They come to me very freely, because they pay an infirmary fee and it costs them nothing, and they often get out of drill. Last winter one of the students went down to the dairy and ate a half pint of cream, went back to his company, and marched to the dining-room. As he went into the dining-hall he grabbed his stomach and uttered a cry as if in excruciating pain. He was taken to the hospital. The consulting surgeon was most accessible, and he gave him a hypodermic. When I arrived the abdomen was rigid and the patient complained of great pain. We considered sending him to the hospital forty miles away, but decided to wait until morning. The next morning he was taken to the hospital, the abdomen was opened, and we found that his stomach had ruptured. The ice-cream was pumped out from among the intestines. After proper surgical treatment, the patient made an uneventful recovery.

DR. WARREN T. VAUGHAN, *Richmond*:—Dr. Willis has asked me in an informal way to present the internist's attitude as to whether the treatment should be medical or surgical. Of course, we are all talking to the same purpose, as there are clear-cut cases in which surgery is indicated and clear-cut cases in which medical treatment is indicated. Dr. Willis's complaint and my complaint and the complaint of many of us is that too many cases are treated surgically when they could be cured medically; not that no ulcer case should ever be operated upon. Now, I am going to disappoint Dr. Willis to just a slight extent. Instead of talking from the medical point of view, I am going to travel into his own field and talk from the surgical point of view. I want to read you just a short quotation from a book just off the press, "The Surgery of Gastro-Duodenal Ulceration," by Charles A. Pannett, Professor of Surgery in the University of London:

"Acute gastric ulcers do not usually require surgical treatment. It is an axiom of the gastro-enterologist that operations should not be undertaken in cases of uncomplicated gastric ulcer until a proper trial of medical measures has proved the lesion to be resistant to this treatment, and to have become chronic.

"There can be no doubt that many true gastric ulcers heal under medical supervision or, indeed, without any treatment at all except that which nature imposes upon the sufferer by forcing him to rest and to restrict his diet. The proof of this lies in the fact that scars of healed ulcers are not uncommonly found during autopsies. Ulcers visible by the X-rays have been observed to become undemonstrable under medical treatment, whilst very often symptoms which appear indubitably to depend upon an organic lesion of the stomach can be banished, never to return. Schindler actually watched the healing of a lesser curvature ulcer through the gastroscope. What proportion of cases are cured in this way is uncertain because, in the absence of

visual proof of the existence of an ulcer, only obtainable by operation, statistics must be somewhat unreliable. Clinical experience would lead us to believe that such cures are of frequent occurrence: just as clearly, however, it reveals to us that some ulcers refuse to heal, or apparently epithelialize over, only to break down again at some future period.

"When symptoms of ulcer appear, no thought of surgery should enter the practitioner's mind until proper medical treatment has been instituted and proved to have failed to bring a cure. The conduct of such medical treatment will not be described here: it includes rest in bed, dieting, control of excessive acidity, and the use of such drugs as belladonna, which influence gastric secretion. When one or, better, two attempts at medical cure have proved ineffective, the surgeon may rightly intervene. Surgery in this disease is to be contemplated only upon the failure of medicine.

"It is no more justifiable to recommend every patient with a duodenal ulcer to submit to a surgical operation than it is in the case of gastric ulceration. Putting aside the serious complications of hemorrhage and perforation, a counsel of delay is always demanded, unless a fair and proper trial of medical measures has been carried out."

Dr. Pannett mentions especially perforation, profuse hemorrhage, obstruction, and extensive scar tissue formation as usually indicating surgery.

DR. MOTLEY, *closing the discussion*:—I want to thank Dr. Willis for his very frank discussion of my paper. Of course, I was thoroughly familiar with Dr. Willis's viewpoint on this subject, and that is why I asked him to discuss this paper. I had attacked his position, in a mild way, and wanted to give him a chance to defend himself.

There are two points I want to emphasize. One is the question of mortality. There has been a good deal said about the surgical mortality in operating on ulcer cases. In the more conservative methods of operating it is less than two per cent. Now, my experience has taught me that there is a very distressing mortality sometimes in cases under medical treatment. The economic question, too, I think, is one that deserves consideration. Out in southwestern Virginia, where my work is done, the cattle market has been off for the last five years, and the farmers have hardly gotten enough for their wheat and corn to pay them for raising the crops. So they are hard up. A medical man, in discussing this subject some time ago, stated that every six months he would have these cases examined with the X-ray, and he reported, with a good deal of enthusiasm, that each six months he noticed a little change, that they seemed to be improving a little bit. Now, I think you will agree with me that if these patients are to be treated medically they ought to be in a hospital. You can not let them go home and try to carry out the treatment, for they will not do it. Now, we have a great deal of difficulty in inducing our patients to stay in the hospital even four or five days, and I know we could not get them to stay long enough for one of these semi-annual examinations. Now, after operation, the man can go back to his work after six weeks and be a wage-earner again. We know there is a good deal of dissatisfaction among surgeons at the present time about our treatment of this condition. That is a hopeful sign, for without dissatisfaction there can be no progress, and this dissatisfaction is leading to a good deal of research work, which will result in better treatment. I think the fundamental fact in the treatment is to find out why people have ulcer. When we find that out it may be that the

internist will develop some better treatment than we have at present, and when we do I shall be very happy to welcome the dawn of a new day.

SKULL FRACTURES.*

By H. L. SKINNER, M. D., Ellis Island, N. Y.
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The subject of head injuries is of such importance to the surgeon and even to the general practitioner who often has to deal with the later complications of such injuries as to warrant a rather frequent survey of the literature. The field embraced by this subject is so large, however, that I have felt obliged to confine myself to a rapid consideration of the method of causation, importance of type of fracture and clinical signs in prognosis and treatment, pathology and complication of skull fractures together with a brief discussion on the value of spinal puncture in treatment.

The increasing hazards of our modern life are producing an even greater number of skull fractures than formerly.

That fractures of the skull are not vastly more frequent is due to various factors; among them are the rounded shape of the calvaria, causing blows to glance off; the division of the separate bones into inner and outer tables with comparatively spongy diploe intervening; the density and mobility of the scalp; the sutures interrupting the transmission of violence; the curved thickenings which, like buttresses, strengthen the skull externally, and extend on each side through the supra-orbital ridge and the upper border of the temporal fossa to the mastoid process and thence to the occipital tuberosity; and the mobility of the head on the spine. In very young persons the dome of the skull is made up of three distinct arches composed of the occipital, the frontal, and the parietal bones. In childhood the center of each of these bones is, on account of early ossification, thicker than the rest, while the edges are connected by membrane and are comparatively movable. These mechanical conditions, together with elasticity of the individual bones in young persons, make fractures of the skull in them rare.

MODE OF INJURY.—Fractures of the vault are usually due to direct force, and fractures of the base to extension of fractures of the vault or indirect violence. Fractures of the base by direct violence may arise from the

penetrations of the nasal roof, the orbital roof or the pharyngeal roof by foreign body. The amount of injury depends upon the type of force causing the fracture. A bending force seldom causes distant injury and is applied by the forcible impact of a body of small area. A bursting force usually causes wide spread injury and is applied by blows on the head from large objects or falls on the head.

Carter, in a report of 233 cases, states that about one-half of these were caused by automobile accidents, and of the 80 cases in this series that died, 32 per cent were due to the automobile. This emphasizes, first, the importance of the automobile as a factor in producing skull fractures, and, second, the seriousness of the injuries thus sustained. He also points out a fatal form of injury in those cases which receive a very forcible blow on the point of the jaw with a fracture of the jaw and a fracture from indirect violence to the base of the skull. Of these, he had six cases, all of which died in a few hours.

TYPE OF FRACTURE.—Here one finds a marked variation in the mortality, and there is much of prognostic value in the type of fracture. In a series of 33 cases admitted at the U. S. Marine Hospital No. 82, the types of fractures were as follows:

Simple or depressed fracture of the vault—13 with one death.
Simple or depressed fracture of the base—3 with one death.
Simple or depressed fracture of vault and base—5 with one death.
Compound fracture of the vault—6 with two deaths.
Compound fracture of the base—5 with four deaths.
Compound comminuted depressed fracture—1 with one death.

The simple fractures of the vault offer the best prognosis, whereas, the most serious are those involving the base. DaCosta states that in over 60 per cent of fractures of the vault the base is involved, and in fractures of the base over 80 per cent extend into the vault. Fractures into the middle fossae are the most frequent, while those in the posterior fossae are the most fatal. The compound comminuted depressed fractures with extensive cortical lacerations and associated basilar injuries are of the most grave prognosis.

SEX AND RACE.—In this series the patients were all males, with 27 whites and 6 colored. Different writers have reported large series of cases including both sexes, and the mortality seems to be about equal in each. There is little of significance in the sex or race as

*Read by invitation before the Norfolk County Medical Society, at Norfolk, Va., October 11, 1926.

Permission to publish this paper has been obtained from the Surgeon-General of the U. S. Public Health Service.

such; since the severity of the injury is the most potent factor.

STATE OF CONSCIOUSNESS.—Much stress is laid on the state of consciousness as of value in prognosis and as a guide in treatment. In our series 17 were unconscious on admission, with 9 deaths. Phelps reports 342 cases of fracture of the skull with unconsciousness and 318 deaths; Ransohoff 98 cases in deep coma with 70 per cent mortality. A steadily increasing state of consciousness is a good omen, even if some of the other findings are not so encouraging, whereas, a deepening state of unconsciousness causes considerable alarm and demands urgent relief of pressure. The classical picture of an immediate loss of consciousness, followed by a clear interval, which is in turn followed by a second loss of consciousness, calls for an immediate operation, which nearly always discloses an extra-dural hemorrhage.

THE PULSE.—The pulse rate unfortunately is not an accurate or an early means of determining the severity of the intra-cranial lesion; ordinarily, the greater the intra-cranial pressure, and, therefore, the less blood supply to the medulla, the slower the pulse rate, but the resistance of the medulla to slight change in its circulation varies so much in different individuals that it is possible to have a high degree of intra-cranial pressure and yet a pulse rate running between 70 and 80 for a period of hours. A steadily diminishing pulse rate means a steadily increasing intra-cranial pressure, and indicates that the pressure must be relieved. Carter believes that, in addition to a slow pulse, if there is an irregularity in rate (thus, if one holds the pulse a full minute or two, he will count fifty for one-quarter and perhaps ninety the next), steps should be taken to relieve the pressure or the case will soon pass over into that stage where therapy will be of no avail.

RESPIRATION.—The respiration, like the pulse rate, is affected by shock, and may exceed 40 for an hour or more after the injury. If, when one first sees a case, it presents Cheyne-Stokes respiration, the prognosis is usually bad, or if this type of respiration is allowed to appear in the course of the illness, the hope of recovery is slight. The following are the most important points in regard to respiration:

1. A steadily slowing respiration means increasing pressure.

2. Frank Cheyne-Stokes respiration, with a

rapid weak pulse and coma, contra-indicate operation.

3. Slight early irregularity in depth of respiration is most important as a positive sign of impending decompensation.

TEMPERATURE.—On admission, the temperature means little unless it is extremely high or unduly low. In the former one would fear the stage of cerebral decompensation has been reached, and, if the latter, the danger from shock is of paramount importance. In favorable cases the temperature rises promptly after shock is recovered from, but does not usually go higher than 102°; it then falls by recessions of a degree or so a day. Operation is not advisable on a patient with 102° and steadily mounting. The onset of meningitis or brain abscess is usually indicated by a sudden rise of several degrees. Wilensky calls attention to the prevalence of fever in skull fractures, and attempts to explain it in one of three ways:

1. The upset of the heat center.

2. Meningitis.

3. The escape of cerebro-spinal fluid through tears in the pia which, in the presence of a bacteriema, gives a temporary mild meningitis.

BLEEDING.—In the series reported by Carter, 59 bled from the nose with 44 per cent mortality. Eighty-four bled from the ear with 50 per cent mortality, and of 80 cases that did not bleed, 12½ per cent died. Therefore, bleeding from the ears, nose or mouth usually means more extensive injury to the base of the skull and a resulting high mortality. Negligence in caring for a bleeding ear or nose is sure to lead to a certain number of cases of meningitis. Cleanliness and avoidance of introducing fluids into the ear or nose are the essentials. Carter recommends that the external ear or nose be cleaned with gauze moistened in hydrogen peroxide and to apply a large sterile dressing to the ear. This is changed as often as necessary. He reports only two cases of meningitis in a series of 233. DaCosta advises the ear and nasopharynx to be irrigated frequently with normal salt solution or boric acid and insufflated with iodoform. We have been using mercurochrome, 2 to 5 per cent, and placing sterile cotton in the ear.

BLOOD PRESSURE.—The blood pressure gradually rises until the stage of decompensation be-

gins. Sharpe states "the blood pressure rarely exceeds 160 unless the patient shows early signs of medullary compression; also the high intra-cranial pressure necessary to raise the general blood pressure to any appreciable extent must reach a very dangerous state of compression in acute cases before its effect can be observed in an increased blood pressure." A number of years ago venesection was considered advisable to lower this increase of the general blood pressure associated with medullary compression. However, it is no longer employed, because it is now known that this increase in the general blood pressure is the attempt of the natural vasomotor mechanism to force blood into the intra-cranial chambers, and thus into the medulla by overcoming the increased intra-cranial pressure. To bleed a patient, therefore, even in mild cases, is an exceedingly dangerous procedure of no real value, and is always contra-indicated.

PUPILS.—Some value can be placed on the pupillary changes as an indication of the amount of intra-cranial damage. In our series there were three cases with dilated fixed pupils, with three deaths; two with pupils dilated on side of injury, but reacted to light and accommodation, which made good recovery; two with small contracted pupils, with two deaths; and twenty-three cases with no pupillary changes, with two deaths. There was no record of pupillary change on three cases which died shortly after admission. Fixed dilated pupils indicate an extreme amount of intra-cranial damage with high mortality. Carter reports 100 per cent mortality. Nichols advises against operations when they are present. Ransohoff reports forty-two cases with forty-one deaths. The dilated pupil is most often on the side of the injury, for the damage is severe, so much so, as to cause large mortality in different series of cases reported; when, however, the pupil on the opposite side is dilated it makes one feel that the contracoup damage is more severe than that on the side of the injury, and that the sum total of the injury is such that an extremely poor prognosis is offered. Sharpe explains the pin-point pupil as due to cortical irritation from supra-cortical hemorrhage, producing the irritative stage of pupillary contraction, and when the compression of the cerebral cortex increases high enough, it gives way to the paralytic stage of dilated pupils. When a pupil which was equal to its mate on admission, later becomes dilated, it means that the

intra-cranial damage is increasing, and one becomes suspicious of an extra- or intra-dural hemorrhage, although some authors emphasize the point that an extra-dural hemorrhage is often accompanied by irritative phenomena rather than by paralysis.

EXAMINATION OF FUNDUS.—Sharpe states that the presence or not of choked discs as the signs of increased intra-cranial pressure has possibly retarded the recognition of the earlier signs more than any other factor. In the acute stages the fundi rarely give any information other than what one can glean from other sources. Some authors report constant findings of blurring of disc edges with fullness of vessels. Jackson does not feel that the fundus shows much change early and does not rely on them.

CONVULSIONS.—The comparative infrequency of convulsions associated with acute brain injuries is very singular. In a series of 487 cases, Sharpe reports twenty-seven cases with convulsions or localized twitchings. Carter reports nine in a series of 233 cases. In these cases, Carter believes it a good policy to operate if a focal convulsion is repeated two or three times over an interval of an hour, as much for the possibility of correcting the damage which may later lead to epilepsy as for immediate results. On this point, Sharpe believes why a small number of these patients develop epilepsy later, is, not so much a question of possible cortical adhesions, depressions of the vault or foreign body spicules, but rather in addition to these factors, a chronic increase of the intra-cranial pressure and especially in patients of lessened nervous stability. He states that, in examining a large number of post-traumatic epileptics, they all had chronic wet, swollen edematous brains, causing a definite increase in intra-cranial pressure, and many of these patients did not have cortical adhesions to be disclosed either at operation or autopsy. In this connection, he also calls attention that frequent convulsions will eventually produce a wet edematous condition of the brain, so that any increase of the intra-cranial pressure in many of the chronic patients is a secondary one, resulting from the convulsions rather than the primary cause. A method of determining whether the increased intra-cranial pressure in these cases is primary or secondary to the convulsions is to ascertain the spinal pressure, then, by vigorous use of triple bromides or luminal, to

prevent the seizures for a period of four to six weeks. If the spinal pressure is the same as before, then the increased intra-cranial pressure is primary, whereas, if the spinal pressure is almost normal, then, it may be concluded that the convulsions are causing the chronic cerebral edema. This test is important in regard to advisability of any operative procedure.

SPINAL PUNCTURE.—The relief of intra-cranial pressure can be obtained early and safely by repeated spinal punctures. The relief so obtained prevents medullary compression, and the symptoms usually looked upon as indications for operation do not appear. The doing of a lumbar puncture, therefore, is of the greatest importance, and it should be performed on each patient as early as possible after the signs of initial shock have disappeared.

Jackson believes that sub-temporal decompression (supra-tentorial) does not adequately relieve pressure on the medulla (sub-tentorial) but lumbar drainage does relieve pressure on the medulla and suffice to prevent death. He bases his argument on the anatomy of the cerebro-spinal water bed; thus, the cerebro-spinal fluid is probably secreted in the ventricles by the choroid plexus. The fluid finds its way from the lateral ventricles through the foramen of Monro to the third ventricle, thence along the aqueduct of Sylvius to the fourth ventricle. In the roof of the fourth ventricle posteriorly is the foramen of Magendie, and in each lateral recess the foramen of Luschka, through which the fluid escapes to the large cisterns beneath the arachnoid. There are cisterns of the sylvian fissure, optic chiasm, interpeduncular space, pons cerebelli, medullary region and great vein of Galen. The fluid rises through the incisura tentorii, to be distributed over the cortex of the cerebrum. This is constantly being absorbed, mostly by the arachnoid villi, into the dural sinuses where there is no obstruction to its circulation. The cerebral and spinal sub-arachnoid systems are freely connected with each other, allowing artificial drainage of the cerebral sub-arachnoid water bed by the spinal route. Therefore, a slight swelling or hemorrhage of the cerebrum or mid-brain blocks the cerebral sub-arachnoid spaces, and the fluid cannot be absorbed along its natural channels. The fluid no longer rises above the tentorium, but col-

lects in the basal cisterns, causing direct pressure on the medulla and forcing the mid-brain up, occluding further the narrow sub-arachnoid spaces in the incisura tentorii. The enlargement of the lateral ventricles above the tentorium forces the cortex of the brain still more against the dura, and, unless the excess of the fluid is withdrawn from below the tentorium, a dry and flattened cortex is found at operation or autopsy. In addition to repeated spinal punctures, Grant advises the use of hypertonic solutions and ventricular tap, if necessary. In our series the effect of glucose on the spinal pressure was tried in two cases. The technic was as follows: After taking the spinal reading, 10 grams of glucose in 20 c.c. of water was given intravenously. The reading was taken every fifteen minutes for one hour, and again taken the next day. There was no drop observed in the spinal pressure at any reading. At the present time very few authors advise operation in the treatment of skull fractures unless all other measures for the relief of pressure have failed, except in cases of depressed fractures or extra-dural hemorrhage. From the standpoint of spinal punctures, skull fracture cases may be grouped as follows:

1. Cases with definite evidence of skull fracture but a normal pressure and no alarming symptoms. One puncture suffices. If the pressure is normal, no fluid is withdrawn.
2. Cases with evidence of increased intra-cranial tension of severe or moderate degree and on whom puncture shows a high pressure (20-30 m.m.). Following one or more punctures, the sign of the pressure diminishes and succeeding punctures show a falling pressure. The fluid here is apt to be quite bloody. Punctures are done at intervals until the pressure is normal or the signs are no longer alarming. It is in this class that the puncture finds its greatest therapeutic value and obviates many decompressive operations.
3. Cases with marked evidence of intra-cranial pressure and high tension on the initial puncture; subsequent punctures show either no drop in pressure or rising pressure. Here the puncture is of little value therapeutically, but is of much value as an indication for some other means of relief of pressure. This is the class to treat by decompression.
4. Cases with evidence of high intra-cranial pressure and high initial tension, but in sub-

sequent taps reveal a low pressure and examination shows no diminution in the severity of symptom. Here the symptoms seem to be due to injury of the brain itself rather than to pressure upon it. Decompression seems of no avail, for, when the dura is exposed, no undue tension is found, and the patient succumbs.

5. Cases with marked evidence of pressure, with the spinal fluid clear, of small amount and under high pressure. In these, suspect extra-dural hemorrhage, and if subsequent examination shows localizing signs, decompression is indicated.

Carter believes that spinal puncture is of great value following operations where signs of pressure still exist, and is a factor in aiding them to survive the operation. It also seems that if one assumes that some of the late effects of skull fractures, such as headache, dizziness and mental changes, are due to continued increased intracranial pressure, that it would be rational to continue the puncture during the patient's convalescence until the pressure is found normal.

PATHOLOGY.—LeCount, in an analysis of 547 cases of skull fracture that came to autopsy at the Cook County Hospital between 1911 and 1918, summarized the chief pathological lesions as follows: 20 per cent are extra-dural hemorrhages resulting from rupture of the middle meningeal artery. In 95 per cent of all fractures there were sub-dural injuries. These consisted of sub-arachnoid or subpial hemorrhages, with a maximum of 100 grams of blood, the average being 40 grams, and only 1 to 10 grams in 40 per cent of the cases. The most frequent change was traumatic edema. Here the convolutions were found flattened, suggesting pressure of the brain against the dura and skull, and the disappearance of the sub-arachnoid water bed. The cerebral vessels were empty and flattened, suggesting an anemia of the brain. The peripheral ends of the sulci were closed, obliterating the normal cisterna of cerebro-spinal fluid. The fluid in the lepto-meninges was lessened, and the visceral layer of the arachnoid almost dry.

PROCESS OF HEALING.—The process of healing does not take place as in the long bones where there is abundant callous formation. Union often occurs by fibrous membrane; even narrow fissures may fail to become reunited by bone. As a rule, however, a slow process of bone production and absorption goes on, hand

in hand, and irregular edges are rounded off as the gaps are more or less filled in. It may be long delayed or may completely fail, due, according to Bergmann, to the destruction or loss of the osteoplastic layer of both inner and outer periosteum as well as to the absence of movement which ordinarily stimulates callous formation. According to Bergmann, defects cannot be expected to close if they exceed a diameter of six to eight centimeters, and it would indeed seem that it is rare even for smaller openings to fill in. There is a great difference of opinion as to the injurious effect of these bone defects, some holding the view that, when extensive, they lead in the course of time to serious mental symptoms. Cushing does not believe they are injurious unless accompanied by an underlying lesion of the dura. When the dura is wounded and the scar formation leads to adhesions between overlying scalp and brain, the chronic fibrous changes which result may lead in time to extensive cortical alterations and mental deterioration.

COMPLICATIONS.—Of the early complications following skull fracture, in our series there were two cases of meningitis, one of facial paralysis, and one of acute encephalitis. Of the late complications, there were five who complained of headache and dizziness, two impaired hearing, one of which also complained of numbness in right side of body and impaired vision right eye, one case of aphasia, two cases of traumatic neurosis, one of epilepsy, one of osteomyelitis, and two cases of post-traumatic insanity. The late complications are rather high in this series, due to the fact that nine were admitted as old fractures.

Neurosis Following Traumatism.—Post-traumatic neurosis may be designated as being a post-traumatic neurasthenia, psychasthenia, or, in general terms, a nervous breakdown. It is solely a functional impairment and in no way associated with an organic lesion; however, it is very important to differentiate the two. Sharpe believes that a very large percentage of these patients were unstable emotionally for periods of months or years before the accident, and that the injury itself merely precipitated and externalized the underlying neurotic condition. The recent psycho-analytical method of examination frequently reveals the predisposing cause for emotional tension, domestic unhappiness, business worries, a craving for sympathy, a future law suit for dam-

age as a result of the injury. The more common signs associated with conditions of post-traumatic neurosis are coarse irregular tremors and ataxia of the hands, a fine tremor of the eyelids upon closing the eyes, and very active reflexes. No Babinski reflex is found in a true case. They show an inability to concentrate, an intolerance to alcohol and the rays of the sun. Treatment consists in correcting the environment and giving the patient a mental rest.

Epilepsy.—Head injuries may produce focal epilepsy, but sometimes set up the common form of the disease. In the Franco-Prussian war, as a result of 8,985 non-fatal head injuries, forty-six cases of epilepsy developed, only about one-half of one per cent.

It is well to remember the origin of epilepsy subsequent to a traumatism may be coincident; the condition may be essential epilepsy and the traumatism may have had nothing to do with it. Epilepsy ensuing upon traumatism may not begin until months or even several years after the injury. If an identified traumatism exists, DaCosta believes the surgeon should operate even after years, and, if the traumatism has not left definite evidence, the surgeon is justified in making an exploration at any time up to the termination of the third year after the accident. The best prognosis of any form of epilepsy is given by Jacksonian epilepsy of traumatic origin, and the chances of cure are much better when following an injury in the motor regions rather than the sensory regions. When it follows an injury in the frontal regions, operation affords very little hope of cure.

According to Sharpe, post-traumatic epilepsy is usually the result of a condition which could have been relieved by operation at the time of the injury. He also states that after the convulsions occur, it is frequently too late to obtain a good result, even if the depressed area of bone or foreign body irritating the cerebral cortex is removed, and especially after the so-called epileptic habit resulting from chronic cortical irritation has been established; a cranial operation at this late date will in many cases be followed by merely a temporary cessation of the spells, and within a period of one to three years the convulsive seizures are as numerous, if not more frequent, than before.

Traumatic Insanity.—DaCosta states that

traumatism is the cause of about 3 per cent of cases of insanity. Stopler collected 981 injuries to the head, and, of these, 138 had a very serious concussion, yet only twelve cases of insanity resulted. In consideration of traumatic insanity, we must make a thorough investigation into the antecedent conditions, such as hereditary pre-disposition, previous attacks of mental disorder, an alcoholic history, and the presence of syphilis. The trauma may simply be a determining factor in an attack of mental disease, an outbreak of delirium tremor, or the beginning of paresis. The severity of the trauma seems to have very little relation to the ultimate seriousness of the result. As to treatment, in a case in which the intermediate period between the injury and the development of the insanity has shown the change from the normal mode of thinking and way of acting previously alluded to, and in which the site of trauma is indicated by a scar, a depression of bone, local tenderness, fixed headache, or some localizing symptom, DaCosta believes operation should positively be performed.

In summarizing the most important points, one may come to the following conclusions:

1. The amount of injury depends upon the type of force causing the fracture.
2. There is a marked variation in mortality and much of prognostic value in the type of fracture.
3. The state of consciousness, pulse, respiration, and temperature are the more important signs to estimate the degree of intra-cranial tension, while the blood pressure and examination of fundi are not of much value in early stages.
4. Some value can be placed on the pupillary changes as an indication to the amount of intra-cranial damage.
5. Spinal puncture is the most desirable method to relieve intra-cranial tension, and is not only of therapeutic value, but a diagnostic aid.
6. The cause of epilepsy or late complications may be due to chronic increased intra-cranial tension rather than a question of cortical adhesions or depressed area of bone.

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HEMANGIOMA OF THE LIVER.

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Of all the internal organs the liver is the one most frequently attacked by hemangioma. While pathologists are familiar with its occurrence and its characteristics, and numerous examples of it have been found post-mortem, clinicians have rarely had an opportunity to observe this condition. This is because hemangioma does not often cause symptoms, and when symptoms do arise they are not immediately referable to the hemangioma, but are the expression of dysfunction in such neighboring organs as may be encroached upon by the enlarging growth.

Furthermore, hemangiomata are very slow-growing tumors, and may take years to develop to any considerable size. Since their walls are usually quite thin, their detection by palpation is often difficult and may be entirely impossible.

The origin of these tumors and whether they are true new growths or merely dilatations of already existing blood vessels have never been definitely determined. A concise review of our knowledge of hemangioma is contained in the following quotation from Ewing:¹ "The common cavernoma of the liver is of much theoretical interest, but rarely produces symptoms. They are single or multiple, as small as a pea or as large as a child's head (Ribbert), and usually lie just beneath or projecting from the surface. They are often associated with angioma of other organs. Their frequency increases with the age of the subjects, but congenital cases rarely occur. Veeder and Austin describe a remarkably extensive multiple congenital hemangioma of the liver. Virchow believed that they might spontaneously disappear, leaving scars. The structure shows central sinuses separated by thin fibrous or cellular septa which may contain islands of liver cells. On the edges are smaller vessels communicating with the sinuses. The tumor is sharply marked off from the parenchyma. Ribbert finds that interstitial injections of the tumor or of the surrounding parenchyma do

not pass from one tissue to the other, the tumor vessels showing a marked independence of the normal vessels of the organ. Yet the tumor may be filled by injections through the portal or hepatic veins or hepatic artery (Virchow).

"The origin and nature of the cavernoma of the liver has long been a subject of discussion, the later phases of which have been maintained by Ribbert and by Schmieden. On the whole, the argument seems to favor the contention of Ribbert, that these growths are partial neoplasms originating from embryogenic disturbances, through which a displaced segment of the organ comes to possess a limited power of aberrant growth. As already stated, Virchow traced their inception in areas of proliferating vascular connective tissue. The progressive dilatation of vessels naturally results from absence of muscular and elastic tissue in the walls."

Peck² in 1921 recorded the successful extirpation of the left lobe of the liver for an hemangioma weighing three pounds fourteen ounces (1759 grams). This is the largest tumor of this character successfully removed in this country, though not the largest ever reported. Pfannenstiel³ removed one even larger, the collapsed growth weighing five pounds after a large quantity of blood had escaped from it.

In reporting his experience Peck reviewed thoroughly all of the operative cases up to that time and found that his was the twenty-first in which operation had been attempted. Excision of the growth was done in seventeen of the twenty-one with fifteen recoveries and two deaths.

A careful search of the literature subsequent to the date of Peck's report has revealed only two more cases in which the tumor was excised, one recorded by Nossen⁴, of Germany in 1924, and the other by Wakeley⁵, of London in 1925. The tumor occupied the left lobe of the liver in both of these cases, and in both it was successfully removed.

The case which is presented in this report is apparently the twentieth instance in which resection of the growth has been accomplished. Of these, eighteen have recovered and two have died—a mortality of 10 per cent.

There are several other recorded instances in which exploratory laparotomy revealed hemangioma of the liver, but excision of the tumor was not done. In the operative cases females have been affected nearly three times

as often as males. The tumor has been found in the left lobe twice as frequently as in the right. The spigelian lobe has also been found involved, and multiple tumors have been reported.

The operative hemorrhage in the recorded cases has been variable, depending chiefly upon the size of the growth and its anatomic location and attachments. Dr. Peck noted that where the constant, dragging weight of the tumor has created a tendency to pedunculation, excision has been facilitated. Aspirating or puncturing the tumor wall is extremely dangerous and has caused fatal hemorrhage.⁶

Peck states that the chief agents used by the various operators in controlling hemorrhage have been the elastic ligature, chain ligatures through the pedicle, cautery excision, and packing.

The history of the present case is as follows:

J. P. Colored female; married; age, 39; occupation, domestic. Admitted to St. Philip Hospital, August 31, 1926. Operation September 29, 1926. Discharged November 21, 1926.

CHIEF COMPLAINT: Growing tumor in upper abdomen, accompanied by loss of strength.

FAMILY AND PAST PERSONAL HISTORY: Unimportant. No serious illnesses. Menstruation always normal. She has had two children, now aged 14 and 12 years, with a miscarriage occurring between these two births. She was normally healthy up to the onset of her present complaint.

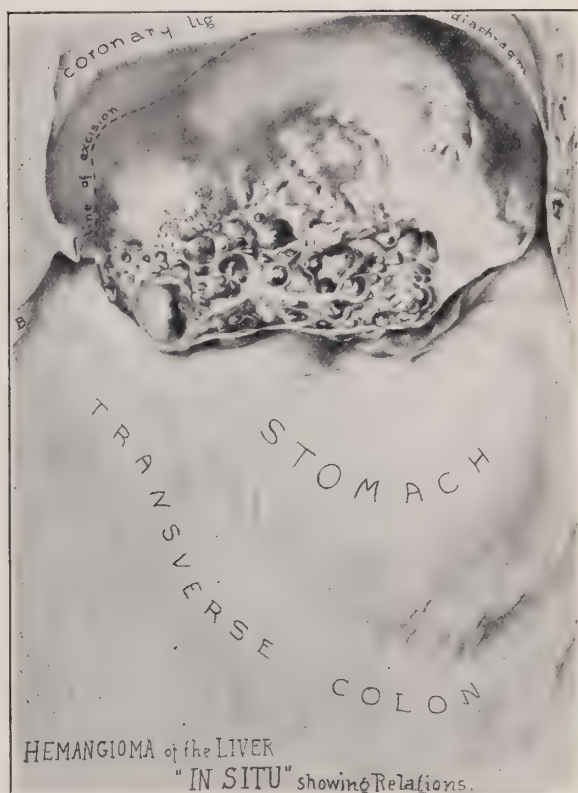
PRESENT ILLNESS began between five and six years ago when she first noticed a lump in her upper abdomen. This was small and rather movable at first but progressively enlarged and became more fixed. Increase in the size of the growth was accompanied by shortness of breath on exertion and by progressive weakness. The growth has never caused pain, though the sensation of weight is always present. There have never been any symptoms of an inflammatory nature associated with the tumor, nor has she had nausea, vomiting, nor marked constipation.

PHYSICAL EXAMINATION: Temperature 98.6°; pulse 100; respiration 22.

GENERAL APPEARANCE: Well developed and well nourished, but anemic.

HEAD: Anemia of skin and mucous membranes. Eyes, ears and nose negative. Teeth good. Tonsils negative. Tongue coated.

CHEST: (a) *Lungs*—Diminution of breath sounds in the left lower lobe when lying down, otherwise negative.



(b) *Heart*—Normal except for some apparent displacement upward and to the left.

ABDOMEN: Shows a firm tumor in the mid-epigastric region, extending thence somewhat to the right and considerably toward the left. It is rather spherical in shape, and extends downward nearly to the umbilicus. A notch can be felt in its lower border. The tumor descends with inspiration. It is painless, very firm and rather fixed, though there is some lateral motion. No tenderness can be elicited anywhere in the abdomen. The stomach seems to be displaced to the left and posterior to the mass. The right lobe of the liver cannot be palpated. Both flanks are clear and the lower abdomen is soft and flat.

VAGINAL EXAMINATION is negative.

EXTREMITIES: Negative.

REFLEXES: Normal.

LABORATORY EXAMINATIONS: (a) *Urine* negative except for a faint trace of albumen.

(b) *Blood* shows hemoglobin 60 per cent; red cells, 3,400,000 per c.m.m.; leucocytes, 11,-

000 per c.m.m. with 64 per cent polynuclears, 32 per cent lymphocytes, 3 per cent large mononuclears, and 1 per cent eosinophiles.

(c) Her *Wassermann* reaction was negative.

On these findings a tentative diagnosis of some form of splenic enlargement in an unusual situation was made, and she was referred to the X-ray department for observation and treatment. Dr. J. L. Tabb presented the following report:

"The mass does not feel like an enlarged spleen, inasmuch as it does not extend to the mid-lumbar region. The right border of the mass, however, is sharp and apparently notched and the feel of it closely resembles an enlarged spleen. It is hardly probable, however, that an enlarged spleen would fail to fill the abdomen in the mid-axillary line just below the diaphragm. For this reason a fluoroscopic examination of the chest was made.

"FLUOROSCOPIC OF CHEST: Lung fields clear. Heart and aortic shadow normal. Left side of diaphragm not materially elevated and there is no material impairment in its mobility. An enlarged spleen practically always causes an impairment of movement of the left side of the diaphragm. A faint rounded shadow is seen apparently extending from the right to the left, and its left border does not reach to the splenic area.

An enlarged spleen would probably cause a displacement of the stomach backward and to the right. A barium meal administered shows the stomach displaced downward and to the left. The lesser curvature is lengthened apparently by pressure on the lesser curvature by a smooth rounded mass originating near the median line or on the right side and extending towards the left. There are a few filling defects in the cardiac portion of the stomach, one of which may be due to pressure of the stomach against the hilum of a normal spleen.

"TWENTY-FOUR HOUR EXAMINATION: Entire colon is well filled. Transverse colon is pressed slightly downward and its left side is displaced slightly to the left curving around the border of the mass. The splenic flexure is in approximately normal position. The descending colon follows a normal course. The hepatic flexure is rather low. No defect is seen in the colon.

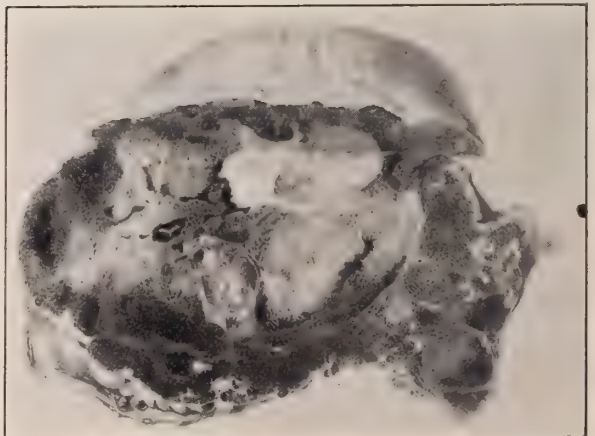
"CONCLUSION: The mass in patient's abdomen is not an enlarged spleen, therefore treatment to spleen is not indicated. In view of the slight roughening of the cardiac end

of the stomach, which is probably produced by solid food, it would be advisable to explore this area when the abdomen is opened."

The spleen being thus disposed of, my next guess was a pancreatic cyst with unusually firm walls. The liver was thought to be eliminated by the location of the tumor, the absence of any enlargement in the right lobe, the absence of jaundice, and of bile in the urine, and the very slight interference with the gastrointestinal organs caused by a mass of such size. Moreover, the site of the tumor corresponded with the most frequent location of pancreatic cysts, which usually reach the surface through the gastro-hepatic omentum.

An exploratory operation was contemplated, but it was thought best to increase the patient's strength and enrich her blood as much as possible beforehand. She was kept in bed on a liberal diet and tonics were given for some time. In spite of these efforts her hemoglobin continued to fall, reaching 45 per cent on September 25th. Further delay seeming hopeless, operation was done on September 29th.

A long left rectus incision was made and the tumor was exposed. It was immediately seen to be continuous with the liver, occupying its left lobe and lying to the left of the gastro-hepatic omentum, being suspended to the under surface of the diaphragm by the coronary ligament which was attached at its upper, posterior border. There were a few light adhesions to the lesser curvature of the stomach. The stomach itself, though dilated and dragged

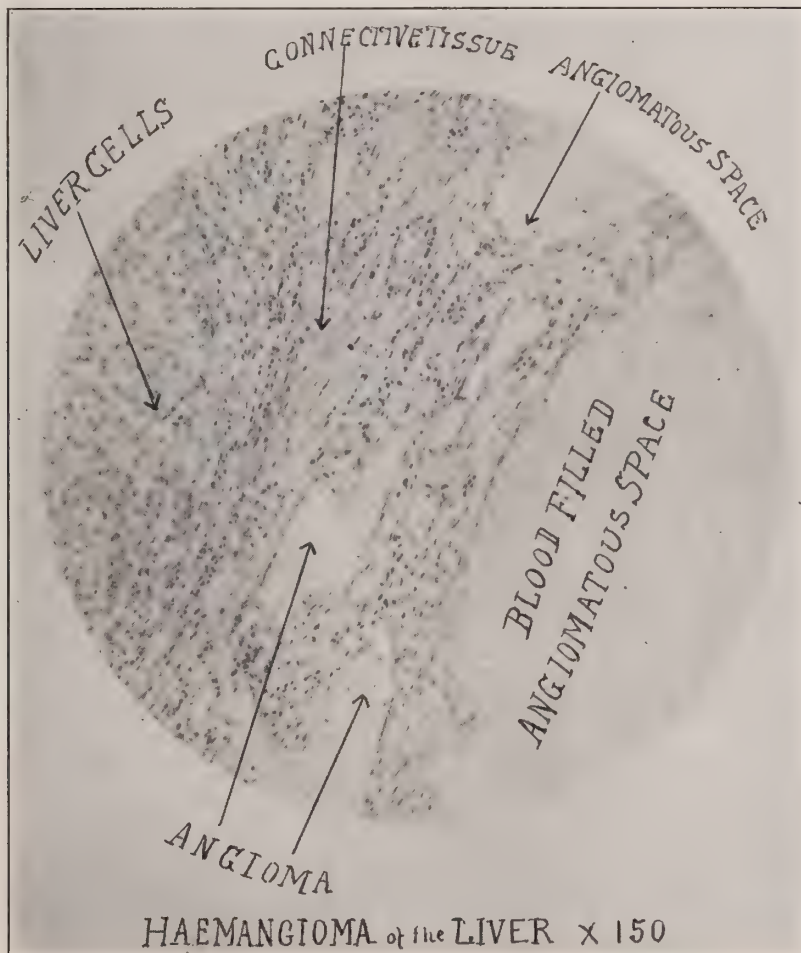


downwards, was otherwise normal; as were the spleen, transverse colon, duodenum, right lobe of the liver, gall-bladder and bile ducts. The pelvis was not explored and the appendix

was not removed. After freeing the adhesions and dividing the coronary ligament between clamps, it was possible to place two rubber-covered, curved intestinal clamps on normal liver tissue proximal to the tumor to control hemorrhage, passing one from behind forward and the other from before backward until they met. The tumor was then cut away, and the cut surface of the liver was sutured, using chromic catgut in a Reverdin needle, and employing the interlocking stitch of Kousnetzoff

The drain was removed on the fifth post-operative day; she was soon eating a liberal diet, and was propped up in bed in the fourth week. At the end of a month she was walking about the ward and her general condition was excellent. Her hemoglobin, however, had only reached 45 per cent again when she left the hospital on November 21st, seven and a half weeks after the operation.

Dr. Charles Phillips made the following report on the tumor:



and Pensky.⁷ The coronary attachment was then ligated. Although hemorrhage had been surprisingly slight, a cigarette drain was placed for safety, and was led out of the upper angle of the wound which was closed in layers.

There was considerable shock following the operation, but she rallied from this nicely and her further convalescence was without incident.

"GROSS DESCRIPTION: The specimen is a semi-solid tumor of the liver weighing 1,015 grammes (2 $\frac{1}{4}$ lbs.), and measures 19x16x5 c.m. (7 $\frac{1}{2}$ ins. x 6 $\frac{1}{2}$ ins. x 2 ins.); it is discoid in shape and of a mottled bluish-red color. On what resembles the peritoneal surface there is a fairly well circumscribed area 13x16 c.m. (5 ins. x 5 $\frac{1}{2}$ ins.) of more or less rounded bluish elevations of angiomatous spaces filled with fluid blood. The whole specimen appears

to have been dissected out of the liver and the cut edge shows mottled yellow tissue resembling fatty degeneration. The blood-filled spaces vary in size and shape and the largest is about 4 c.m. in diameter. On the peritoneal surface there are many fibrous trabeculae running in various directions.

"MICROSCOPIC DESCRIPTION: The blood spaces vary greatly in size and are lined with a flattened endothelium on a thin fibrous stroma. They are separated by poorly developed and in places degenerated liver tissue. Practically no normal liver parenchyma is found, due to compression and degeneration.

"PATHOLOGICAL DIAGNOSIS: Large cavernous hemangioma of the liver."

On January 5, 1927, I examined the patient in my office. She had gained in weight and strength and there was no apparent anemia.

Abdominal examination was negative. The operative scar was excellent. There were no abdominal masses nor tenderness. She had no subjective symptoms and appeared to be completely cured.

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PUERPERAL ECLAMPSIA.

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If there is anything in this world that is calculated to strike terror to the hearts of all who are present it is a puerperal convulsion, either before or after delivery. Everybody is scared to death, some weeping and wailing, others looking like petrified ghosts, none with sense enough left to do a sane thing, and if the doctor can keep his equilibrium and appear calm and unruffled he is exceedingly lucky. I heard a doctor say once in a medical convention that he was always scared when a typhoid patient had intestinal hemorrhage, and that the only thing that scared him any more than that was puerperal eclampsia. If

there ever was a time when the doctor ought to have complete control of himself and of all his powers it is a time like this. Having had many cases of this kind it may not be amiss to detail a few of them. I am glad to be able to say—and I say this not in a spirit of egotism, but with humble, grateful acknowledgment to Almighty God—that I have never seen a fatal case, although I have had all sorts and sizes, both before and after delivery. I think we have a better chance after delivery than before, for obvious reasons.

CASE 1. Here is a case of a young woman with her first baby. She had one big convulsion just before the baby was born. Fortunately, the conditions were favorable and I immediately took the child with the forceps, then bled her from the arm and injected into the bowel about thirty grains each of sodium bromide and chloral hydrate. She had no more convulsions, but slept about twenty hours without any sign of a return of consciousness. Some of the women said I "gave her too much chloroform" and they were afraid "she would never wake up." The fact is she had not had any chloroform at all. It was with great difficulty that I could get them to understand the cause of her coma, if, indeed, they ever did understand. When we attempt to explain a pathological condition to a lot of lay women, we may think we have made it very plain, but it is "all mud" to them. I am satisfied, however, that if this woman had died they would have thought that I killed her.

CASE 2. In this case the woman had already been delivered before my arrival, but was having convulsions, one after another in rapid succession, jumping about from one side of the bed to the other and altogether unmanageable. She was treated with hypodermics of morphine and atropine, full doses, and made a good recovery.

CASE 3. Was that of a young woman in the seventh month of her first pregnancy. When I reached her she had fallen on the floor with a big convulsion and was then in profound coma. I made a saturated solution of Epsom salts and fed her with it, a teaspoonful at a time, every few minutes, until she had taken a liberal supply. I then left her for a time, as I was booked for another place. She had very copious watery discharges, was up the next day and went on to full term.

CASE 4. This case was about seven miles from my office, and the telephone call was to

"come quick." This young woman had already had five convulsions, and was then in profound coma, face purple, breathing labored, and I do not believe she would have lived another hour. Fortunately, the child was near the outlet and was immediately taken out with the forceps. I then gave her a copious enema of Epsom salts and sat down to watch her. She had two more convulsions several hours afterwards, and I gave her a hypodermic of morphine and atropine and made sure that she had full doses of Epsom salts per rectum. She slept until noon the next day, twenty-four hours in all, then asked feebly, if she might have some water. That was the first sign of returning consciousness. She has had two children since and no trouble.

CASE 5. A young man who lived ten miles from my home asked me to attend his wife at the birth of her first child, expected in about two weeks. As I had never been called there before, I took it as a compliment and, of course, readily consented. He told me that her feet and ankles were very much swollen so I sent him back home for a specimen of urine. After I made my analysis I told him that I thought it very likely that his wife would have convulsions at the time of her delivery, but of course he must not tell her. He was instructed to give her full doses of Epsom salts every day and bring me specimens of urine every two or three days. This he did. When the time came she did very well for about an hour and then had a convulsion. The labor had made very little progress, the cervix only dilated about the size of a half-dollar and was rather rigid. Now what to do? Of course, the great desideratum was to deliver the child, but how? Everything I could give her to control the convulsions would at the same time control the uterine contractions and stop the labor, whether chloroform, or chloral hydrate, or morphine and atropine, or what not. So I did this: I gave her a full hypodermic of morphine and atropine and about three minims of pituitrin, with inhalations of chloroform, and so on, feeling my way with the pituitrin, oiling the cervix and applying to it also about one-fifteenth of a grain of powdered atropine. The cervix gradually dilated and the push of the pituitrin, little by little, brought the head into the vaginal strait, until I could get hold of it with the forceps. She had five convulsions before delivery, one in the act of delivery and two after the delivery was complete. This procedure took nearly

all night, but she made a good recovery and her baby was also safe. I confess that I was very proud of my success in this case, but when she had another baby about two years after that, she didn't call *me* but got another doctor, equally as far from her, and one whom she had never had with her before. Not a word was said to me, but I have always thought that somebody had told them that if some other doctor had been with her the first time she would not have had all that trouble. Such is fame!

But I have given cases enough. Now for some general remarks by way of friendly advice to my fellow practitioners:

(1). Keep cool, think fast and act promptly.

(2). As to bleeding the patient: It is sometimes a very wise thing to do, but not always. The patient may have already lost enough blood, or will do so at the time of birth. It is well to consider that we can't subject all to the same rule. Many a life has been lost by *sticking to the books* too closely.

(3). When there is more than one convulsion, chloral hydrate and sodium bromide, mixed, in full doses, or the inhalation of chloroform, or both, are very valuable. But if there is only one convulsion I would wait awhile before giving any of these.

(4). Hypodermics of morphine and atropine are very useful and always to be thought of when it is found difficult to give anything by the mouth. It may be necessary to give a hypodermic even after a full dose of chloral and bromide. We know that opium produces anemia of the brain, and does *not* increase the coma that follows a puerperal convulsion, but it controls the nerve centers and helps to forestall another.

(5). We must always try to get rid of the urea and other poisons and there is no better way, or safer way, than full doses of Epsom salts, by the mouth if we can, and if not, then by the rectum. In some of the cases I have mentioned this drug was used *ad libitum* and, after arranging to protect the bed as much as possible, we just let the water roll out in a flood.

(6). In case of No. 5, cited above, I have mentioned the use of pituitrin. What else could I do? I *must* deliver the child, and yet I knew that if the pituitrin acted violently the uterus would be ruptured, so I was in the position of a man driving close to the edge of a canyon, with unmeasured depths below. I kept the

syringe loaded and gave about three minims every ten or fifteen minutes and watched the effect. It is a dangerous drug and should be handled with the utmost caution.

(7). Of course if we are spoken to in time we ought to make frequent analyses and see that the woman is in the best possible condition for her approaching trial; but many of these cases are thrust upon us and we must be prepared to do all that ought to be done, or that anybody could do, for the poor woman who has entrusted her life to us. In this paper I have only attempted to give the outline of a few typical cases, with the treatment and the outcome. To enter into a general discussion of the many drugs which have been brought to our attention in the literature on this subject would occupy too much space, and would only be a rehash of theories already familiar to the profession.

Correspondence

May Day—Child Health Day for Virginia, 1927.

MARCH 16, 1927.

TO THE EDITOR:

This is to notify the doctors of Virginia that in all probability many of them will be called upon by the rural school teachers to check those pupils who aspire to be called "Five Point" children.

The State Board of Health has offered a five point star banner to the school in each county which has the highest percentage of Five Point children.

WHAT IS A FIVE POINT CHILD?

A "Five Point Child" is one who measures up to the present minimum standard set by the State Board of Health and State Board of Education, as indicated by physical inspection of the following five points:

1. Vision
2. Hearing
3. Teeth
4. Throat
5. Weight

HOW DO WE FIND THE FIVE POINT CHILD?

The West law, which the Legislature passed in 1920, requires the physical inspection on these points of all school children. A detailed explanation of the inspection is:

VISION—Child reads line marked 20 on the Snellen eye testing chart at a distance of 20 feet (each eye tested separately), or has glasses which are properly fitted.

HEARING—Child hears conversational voice at a distance of 20 feet. (Each ear tested separately).

TEETH—Teeth reasonably clean, no exposed roots or unfilled cavities.

THROAT—Child has no symptoms of trouble with tonsils and adenoids; not a mouth-breather. (Preferably checked by a doctor).

WEIGHT—Child is not 10% or more underweight, or not 20% or more overweight.

WHY HAVE THIS FIVE POINT STANDARD FOR CHILDREN?

Because even a slight defect in any one of these five points, if not corrected, may seriously hamper the child's health during school days, and have a very harmful effect in later years. The child in good health is a better pupil, and the man or woman in good health is a better citizen.

Before the award is made in a county, all children selected by the teacher as Five Point children must be checked by a doctor, or a nurse if no doctor is available. All children declared by the local doctor or nurse to be "Five Pointers" will be given a five point certificate on May Day—Child Health Day.

When a doctor is requested to check these children, the following procedure is suggested for him:

Ask the teacher for the physical inspection record cards of pupils selected as Five Pointers. Go over these cards carefully with the teacher and assure yourself that she has confidence in her own findings.

If you and the teacher are satisfied that the vision and hearing tests are reasonably accurate, these tests need not be repeated.

Check up inspection of teeth and throat and compare your findings with the minimum standard. A written statement from the dentist or family doctor may be accepted as a substitute for your verdict.

If the child has been recently weighed and measured by the teacher, her record should be accepted. Find whether each child is 10% underweight or 20% overweight as compared with the Standard Weight Chart in Health

Manual for Teachers, which every teacher has on her desk.

If the child measures up to *all five points* he or she may be awarded the Five Point Certificate.

The cooperation of the doctors will be heartily appreciated; in fact, the success of this undertaking largely depends upon it.

MARY EVELYN BRYDON, M. D.,
Virginia Chairman for May Day-
Child Health Day,
State Board of Health, Richmond, Va.

Bibliotheca Obstetrica

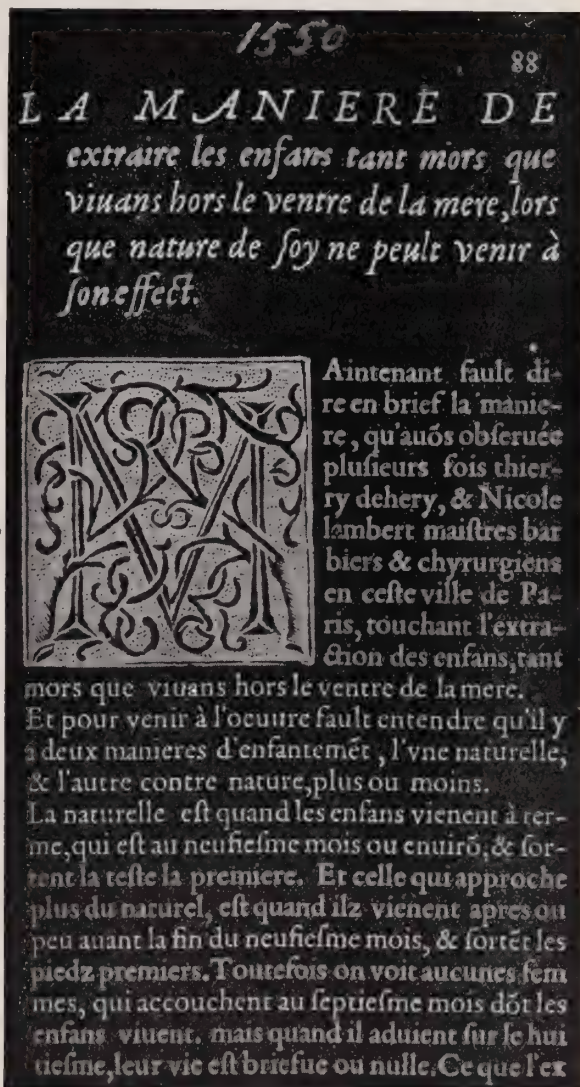
Paré

Paré (Ambroise) [1510-90] Briefve collection de l'administration anatomique; avec la maniere de conjoindre les os, et d'extraire les enfers tant mors que vivans du ventre de la mere, lors que nature soy ne peult venir a son effet. 7 p. 1., 96 l., 12°. Paris, G. Cavellat, 1550. For Biography, see Paget (S) Ambroise Paré and his times, 1510-1590. 8° New York and London, 1897. See also Packard (F. R.) Life and times of Ambroise Paré, 1510-1590, with a new translation of his apology and an account of his journeys in divers places. New York, 1921.

Scientific obstetrics begins, according to Engelmann, in 1550, with the re-discovery of podalic version by Paré. Before this time the practice of obstetrics was entirely in the hands of midwives, and medical men were called in only to do an embryotomy as a last resort. It is true that podalic version was known in ancient times, but seems to have been performed only after the death of the infant. Soranus in the second century practiced it upon living children, but his teaching had little effect, and after his time the operation even upon dead infants was soon forgotten. With the teaching of version by Paré, medical men had for the first time a way of coping with abnormal presentations, and with their increased usefulness, came greater opportunities of studying the mechanism of labor. We thus see what an important place this little book occupies in the history of modern obstetrics. When we think of the dismal prospect that confronted women with abnormal presentations before 1550, we can readily forgive Paré his inaccuracies. What

did it matter if he taught that the pubic bones separated during labor to make room for the advancing head, when he taught how to deliver a woman with a placenta previa or to save the child that presented by the shoulder?

Not only was Paré the greatest teacher of obstetrics of his day, but he was also the foremost surgeon. He ranks among the greatest military surgeons of all time. He is to be re-



Photostat of the beginning of Chapter on Version.

membered especially for the introduction of podalic version, accouchement forcé, more humane methods of treating wounds, artificial limbs, artificial eyes, improvements in the treatment of hernia, and the use of ligatures in amputations.

Paré was born at Bourg Hersent, a little

village that is now a part of the city of Laval. There is considerable traditional evidence that his father was valet de chambre and barber to the Sieur de Laval. His sister, Catherine, married a master barber-surgeon of Paris and a brother was a master barber-surgeon at Vitré. Paré began his medical career probably as an apprentice to a surgeon at Laval named Violet. The next few years were spent either at Angers or with his brother, Jean, at Vitré. When he came to Paris in 1532 or 1533, he was apprenticed to a barber-surgeon. His textbooks were the works of Gui de Chauliac and Jean de Vigo, both of which had been translated from the Latin into French. He very soon became *compaynon chirurgien*, a sort of interne, at the Hotel Dieu. In 1537 he went to Italy, as a military surgeon, with the French army. It was on this campaign that Paré made his great discovery that boiling oil was harmful in the treatment of gun shot wounds. In 1541, after an unsuccessful effort in 1540, he passed his barber-surgeons' examination which allowed him to legally practice in Paris.

Before this, however, Paré had achieved some reputation, for in 1539 the renowned Sylvius sought out the young army surgeon, being particularly interested in his method of treatment of arquebus wounds. Not only had Paré abandoned the until-then-universal use of boiling oil in the treatment of these wounds, but he had been unusually successful in locating the ball by making the patient assume the position he was in when he received the wound. Sylvius urged Paré to publish his observations at this time, but it was not until 1545 that Paré followed his advice. (*La methode de traista le playes faictes par hecquebutes et aultres bastons a feu*, 1545). The book was reprinted in 1552 and again in 1556. The work established Paré's reputation and after several military campaigns with intervals of study in Paris, he was made one of the surgeons in ordinary to Henry II. In 1554 he was made a member of the College de Saint Come, thus becoming a master surgeon in spite of the fact that he knew no Latin. Paré continued in favor with Henry II and his successors, becoming *premier chirurgien to the king* in Charles IX's reign, so that at his death at 80 years he could truthfully boast of having been the surgeon of the King of Navarre and the French kings, Henry II, Francois II, Charles IX, and Henry III.

M. P. R.

Proceedings of Societies

The Nansemond County Medical Society

Held its March meeting in the dining room of Hotel Elliott, at Suffolk, Va., March 7th, with a good attendance of members and dentists and their wives and nurses. Invited guests were Dr. Israel Brown, councilor for that district, and Dr. Frank Hancock, both of Norfolk. A short talk was given by Dr. Brown, and Dr. Hancock gave the address of the evening—The History of Medicine—which was illustrated with lantern slides. This society re-organized about a year and half ago and has been most active since. Dr. W. T. Gay, of Suffolk, is president this year.

Pittsylvania County and Danville Medical Society.

Members of the Pittsylvania County and Danville Medical Society were guests of the Danville Academy of Medicine at a delightful supper on the evening of March 15th. Following the supper, the meeting was called to order by the president, Dr. C. A. Easley, of Chatham, who opened the meeting with a few general remarks about the Society and a brief sketch of the life of Dr. Rawley W. Martin. A paper was read by Dr. Henry J. Langston, several cases were reported by Dr. E. H. Miller, and a talk was given by the city health officer, Dr. R. W. Garnett, on the recent activity of the health department in the administration of toxin-antitoxin for the prevention of diphtheria. Dr. J. Shelton Horsley, president of the Medical Society of Virginia also presented a paper.

Following a discussion of the papers and talks, it was moved and carried that two committees be appointed, one from Danville and one from the rest of Pittsylvania County, to co-operate with the health departments in the administration of toxin-antitoxin for the prevention of diphtheria. The president appointed these two committees. This plan may be a suggestion to other county societies as to the way to assist the State and county health departments.

It was decided to hold the next meeting in Chatham, on Tuesday, June the 13th. Dr. J. A. Hawkins, Danville, is secretary-treasurer of the society.

The Southwestern Virginia Medical Society

Held its regular semi-annual meeting at Pulaski, March 24th and 25th, the president,

Dr. Z. V. Sherrill, of Marion, presiding. There was a subscription banquet on the first evening at Maple Shade Inn, following which the scientific program was taken up. Drs. E. C. S. Taliaferro, Norfolk, L. T. Price and E. G. Williams and Mr. A. H. Straus, of Richmond, invited guests, presented interesting papers on the first evening, and voluntary papers and a symposium on "Acute Abdomen in Children Under Ten Years of Age" were presented by members on the second day. The papers were freely discussed and the meeting was a success in every way. Dr. E. G. Gill, Roanoke, is secretary of the Society.

Boteourt County Medical Society.

Members of this Society and their wives were entertained at their regular meeting on March 8th, at the home of the retiring president, Dr. W. N. Breckinridge, at Fincastle, Va. Dr. and Mrs. Hugh Trout and Dr. and Mrs. Geo. B. Lawson, of Roanoke, were invited guests for this meeting. After luncheon, talks were given by Drs. Trout and Lawson and a business session was held at which time Dr. A. W. Hammond, of Amsterdam, was elected president, and Dr. E. W. Dodd, of Buchanan, secretary.

The Arlington County Medical Society

Held its regular meeting at the home of Dr. Richard N. Sutton, at Clarendon, early in March. At this meeting the Society endorsed the movement launched by the American Legion for the establishment of a hospital in Arlington County. While the site for the proposed hospital was not determined upon, it is probable that Clarendon will be selected. The following officers were re-elected for the ensuing year: President, Dr. H. A. Hornthal, Potomac; vice-president, Dr. Edward McCarthy, Cherrydale; and secretary-treasurer, Dr. B. H. Swain, Ballston.

The Southside Virginia Medical Association

Met in Hopewell, Va., March the 8th, at the Dupont Club, with a good attendance at both morning and afternoon sessions. There was a good program and all papers were freely discussed. Following the morning session, the visiting doctors were given a trip over the industries now at Hopewell and tendered a luncheon. Dinner was given the members and visitors in the evening at City Point Inn, at which time there were speeches and music. The Association selected Emporia for its next meeting which is to be held on the second Tues-

day in June. Dr. Wright Clarkson, Petersburg, is president, and Dr. R. L. Raiford, Sedley, secretary-treasurer.

Woman's Auxiliary Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Invitation to Virginia Women.

The annual meeting of the Woman's Auxiliary to the American Medical Association will be held in Washington, May 16th to 20th, with headquarters at the Mayflower Hotel.

This meeting is so near home that the Virginia women should make every effort to attend. Your presence will not only help the meeting but will be a great inspiration to yourselves. If you have never attended an American Medical Association Woman's Auxiliary meeting, you cannot realize the pleasure and help that can be obtained from contact with those splendid women, wives of the most prominent doctors from all over our country, and it is a pleasure to know the officers of the National Auxiliary.

Now is the time for every county member and every individual, whether she is a member of the Auxiliary or not, to make plans to go in person to this meeting.

There are only two delegates appointed to vote for Virginia, but each county Auxiliary can appoint its own representative to bring back the message to those unable to go to Washington.

A cordial and pressing invitation is extended to each and every one, and it is hoped that the Virginia women will attend *en masse*. Urge your husbands to take you. Now is your opportunity. Seize it. Obey that impulse. A great privilege awaits each one of you.

MRS. SOUTHGATE LEIGH,
*Chairman, National Intertainment
Committee.*

The Truth About Medicine

In addition to the articles enumerated in our letter of January 29th, the following have been accepted:

Eli Lilly & Co.

Ricinoleated Antigen, Scarlet Fever, Immunizing—Lilly.

National Aniline & Chemical Co.

Tablets Gentian Violet Medicinal—"National," 0.0324 Gm. ($\frac{1}{2}$ grain).

Enteric Coated Tablets Gentian Violet Medicinal—"National," 0.0324 Gm. ($\frac{1}{2}$ grain).

Parke, Davis & Co.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.5 Gm. ($\frac{3}{4}$ grain), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.10 Gm. ($\frac{1}{2}$ grains), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.13 Gm. (2 grains), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.20 Gm. (3 grains), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.3 Gm. (5 grains), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.45 Gm. (7 grains), 1 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 1 Gm. (15 grains), 2 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for intravenous use), 0.20 Gm. (3 grains), 5 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for intravenous use), 0.45 Gm. (7 grains), 5 c.c.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for intravenous use), 1 Gm., (15 $\frac{1}{2}$ grains), 10 c.c.

Swan-Myers Co.

Cosmos Concentrated Pollen Extract—Swan-Myers; Dandelion.

Concentrated Pollen Extract—Swan-Myers; Palmer's Amaranth.

Concentrated Pollen Extract—Swan-Myers.

The United Laboratories

Culture Bacillus Acidophilus—United Laboratories.

Nonproprietary Articles

Ricinoleated Scarlet Fever Antigen.

NEW AND NON-OFFICIAL REMEDIES

Saf-T-Top Mercurochrome Solution.—An aqueous 2 per cent solution of mercurochrome—220 soluble (New and Non-official Remedies, 1926, p. 249), in ampoules containing 2 c.c. and having a capillary opening. Robert A. Bernhard, Rochester, N. Y.

Bismuth Salicylate in Oil—P. D. & Co.—A suspension of bismuth salicylate U. S. P. (New and Non-official Remedies, 1926, p. 97), in a liquid composed of camphor, 10 per cent; creosote, 10 per cent; olive oil, 80 per cent. Each c.c. contains bismuth salicylate, 0.13 Gm (2 grains). Parke, Davis & Co., Detroit.

Glaseptic Ampoules Bismuth Salicylate in Oil—P. D. & Co., 1 c.c.—Each ampule contains 1 c.c. of a suspension of bismuth salicylate U. S. P. (New and Non-official Remedies, 1926, p. 97), 0.13 Gm. (2 grains) in a liquid composed of camphor, 10 per cent; creosote, 10 per cent; olive oil, 80 per cent. Parke, Davis & Co., Detroit.

Concentrated Pollen Extracts—Swan-Myers.—In addition to the products listed in New and Non-official Remedies, 1926, p. 28, the following have been accepted: Cosmos Concentrated Pollen Extract—Swan-

Myers; Dandelion Concentrated Pollen Extract—Swan-Myers; Palmer's Amaranth Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis.

Erysipelas Streptococcus Antitoxin—Lilly (Concentrated Globulin).—An erysipelas streptococcus antitoxin (Jour. A. M. A., August 28, 1926, p. 671), obtained by injecting horses subcutaneously with strains of hemolytic streptococci obtained from Dr. A. R. Dochez from human cases of erysipelas lesions, bleeding the horses, and when test bleedings show the serum to have reached the desired potency, bleeding as plasma which is concentrated and refined. Marketed in syringe containers (therapeutic dose), containing 5,000 "units." Eli Lilly & Co., Indianapolis. (Jour. A. M. A., Feb. 5, 1927, p. 403).

Antistreptococic Serum (New and Non-official Remedies, 1926, p. 339).—This product is also marketed in 20 c.c. and 50 c.c. piston syringes. Parke, Davis & Co., Detroit.

Tablets Gentian Violet Medicinal—"National," 0.0324 Gm. ($\frac{1}{2}$ grain).—Each tablet contains Gentian Violet Medicinal—"National" (New and Non-official Remedies, 1926, p. 167), 0.0324 Gm. ($\frac{1}{2}$ grain). National Aniline and Chemical Co., New York.

Enteric Coated Tablets Gentian Violet Medicinal—"National," 0.0324 Gm. ($\frac{1}{2}$ grain).—Each tablet contains Gentian Violet Medicinal—"National" (New and Non-official Remedies, 1926, p. 167) 0.0324 Gm. ($\frac{1}{2}$ grain), and is coated with phenyl salicylate containing some keratin. National Aniline and Chemical Co., New York.

Ricinoleated Scarlet Fever Antigen.—A bacterial vaccine detoxified with sodium ricinoleate according to the method of Dr. W. F. Larson. Enough favorable evidence has accumulated to indicate that this preparation is worthy of clinical trial by physicians. The antigen is used for active immunization against scarlet fever.

Ricinoleated Scarlet Fever Antigen Immunizing—Lilly.—This product is prepared from whole broth cultures of scarlet fever streptococci, containing 1,000 million organisms in each c.c. modified with 2 per cent of sodium ricinoleate. It is marketed in 1 c.c., 5 c.c. and 20 c.c. vials. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., Feb. 19, 1927, p. 567).

PROPAGANDA FOR REFORM

Spahlinger Treatment of Tuberculosis.—Notwithstanding the fact that the Spahlinger treatment of tuberculosis was secret and that evidence in its favor had not been made generally available, Spahlinger and his friends have repeatedly attempted to secure government endorsement of the preparation in England and to secure funds for its development. Now the records of ten patients injected by Spahlinger personally with this remedy have been reported by Dr. Thomas Nelson in the *London Lancet*. These records are decidedly unfavorable to the treatment. The evidence in favor of the Spahlinger method of treatment of tuberculosis is not sufficient at this time to warrant an extensive trial. The burden of proof is still on Spahlinger, who should at least show that in a considerable number of cases studied under controlled conditions the remedy will accomplish more than can be accomplished by the method of treatment now practiced in well regulated institutions for the treatment of tuberculosis. (Jour. A. M. A., Jan. 22, 1927, p. 248).

Chemical Examination of Ethylene for Anesthesia.—In consideration of the recently reported deaths from ethylene anesthesia, the A. M. A. Chemical Laboratory decided to re-examine the brand of ethylene for anesthesia accepted for New and Non-official Remedies, namely, that of the Ohio Chemical and

Manufacturing Co. As the Kansas City Oxygen Gas Co. has just submitted its product to the Council, this brand was also examined. The brand of ethylene which was used in the fatal cases was not examined and is not one of the brands reported on. The specimens were examined according to the methods of New and Non-official Remedies and in addition submitted to a more delicate test for carbon monoxide. They met the standards and in none was carbon monoxide found to be present. The Laboratory recommends that physicians use only the brands of ethylene which stand accepted for inclusion in New and Non-official Remedies. (Jour. A. M. A., Jan. 29, 1927, p. 322).

Rattlesnake Poison.—According to Afranio Do Amaral, "A General Consideration of Snake Poisoning," the use of potassium permanganate in the treatment of rattlesnake bite, is of little value. Specific treatment with potent antivenin is generally admitted to be efficient, and the only means of neutralizing the poisons and arresting the action of the toxic elements. During the last summer a few tubes of anticrotalic serum prepared in Brazil were used with promising results in Texas. (Jour. A. M. A., Jan. 29, 1927, p. 342).

The Florence Laboratories Fraud.—The federal authorities have issued a fraud order closing the mails to the Florence Laboratories, the Florence Produce Corporation and F. H. Shearer. The evidence brought out that Mrs. Shearer exploited three nostrums, an asthma remedy, an eye tonic and a cod-liver oil preparation. The asthma nostrum—*Florence Formula*—was a potassium iodide and Fowler's Solution combination; the eye tonic, which seems to have been known as "Eyrone" contained glycerin, procaine, boric acid, zinc sulphate and salicylic acid, while the cod-liver oil tablets contained cod-liver extractives, with alleged vitamin A and vitamin B material. The remedies were prepared by George A. Breon & Co., Manufacturing Chemists, Kansas City, Mo. (Jour. A. M. A., Jan. 29, 1927, p. 340).

Radithor.—"Radithor" is the name of the latest nostrum in which William J. A. Bailey is interested. It is being exploited by means of elaborate booklets and also through what purports to be a book, entitled "Modern Rejuvenation Methods," by one Charles Evans Morris, M. D. Radithor is exploited by the somewhat imposingly named Bailey Radium Laboratories, East Orange, N. J., of which William J. A. Bailey seems to be the chief. Two or three years ago, Bailey was president and one of the incorporators of the "Associated Radium Chemists, Inc.," which put out "Arium Tablets." Bailey also, it appears, was connected with the Thorone Company, which sold "Thorone Tablets," claimed to be more radioactive than radium. Later, Bailey was connected with the American Endocrine Laboratories, which exploited what was originally called the "Radiendocrinator" and sold first for one thousand dollars and later for one hundred and fifty dollars. (Jour. A. M. A., Jan. 29, 1927, p. 343).

The Organism of Rheumatic Fever.—A report of the isolation of the specific organism causing rheumatic fever has been published and also the results of trials with an antiserum. *Streptococcus cardioarthritidis*, the name given to the organism which was isolated from the blood culture of only two patients with rheumatic fever, differs in only one respect from the usual nonhemolytic streptococcus. The claim of the relation of the organism to rheumatic fever appears to rest chiefly on the results obtained from treating patients with an antiserum prepared by immunizing a horse with this strepto-

coccus. The case reports are not convincing. Favorable reports with a serum prepared by immunizing horses with culture of streptococci isolated from throats of rheumatic fever patients have been published previously; they were probably due to a non-specific reaction. Since then, curative effects have been reported from the use of various forms of non-specific protein preparations. (Jour. A. M. A., Feb. 5, 1927, p. 405).

Ovacoids and Testacoids.—The advertising claims made for these preparations of Reed and Carnrick are typical of those made by this firm for products examined by the Council on Pharmacy and Chemistry and denied admission to New and Non-official Remedies in 1907. Ovacoids and Testacoids are stated to be "the hormones or autocoids of the sex glands in high concentration, and *active by mouth!*" Ovacoids is stated to "represent the hormones of the entire ovary in highly concentrated form, associated with the hormones of the anterior pituitary and with phosphorus in organic combination." Testacoids are claimed to contain "in addition to the testicular hormones, . . . the hormones of the prostate gland and organic phosphorus." The use of these preparations is irrational and dangerous because the character of the ingredients and their amounts is not declared. The administration of organic phosphorus is not only irrational but superfluous. Though indefinite and semisecret, the composition of Ovacoids and Testacoids is sufficiently specific to place the preparations in the class of pluriglandular mixtures, to the menace of which the Council on Pharmacy and Chemistry has repeatedly called attention. The most important ingredient of Testacoids is apparently a testicular extract. Such preparations are not accepted for New and Non-official Remedies and their therapeutic value has not been demonstrated. There is nothing in the claimed composition of Testacoids to furnish a basis for the extensive claims made for the preparation. (Jour. A. M. A., Feb. 5, 1927, p. 422).

Spengler Treatment of Tuberculosis.—The Spengler immune blood treatment of tuberculosis is a method based on the principle of passive immunization. In 1908, Carl Spengler announced his theory that red blood cells play an important part in immunity to tuberculosis, immune substances being contained within the stroma of the erythrocytes of the resistant animal. He reported favorable results with his preparation "Spengler's I. K." The method has had only small support. From the published reviews it may be concluded that the method is not of value. (Jour. A. M. A., Feb. 5, 1927, p. 425).

Ephedrine.—The Council on Pharmacy and Chemistry states that the reports which have been issued since its first report was published, warrant the acceptance of the drug for New and Non-official Remedies and the recognition of acceptable brands if the firms which market them will agree to be conservative in their claims. The Council report is accompanied by a report of the A. M. A. Chemical Laboratory on the establishment of standards for ephedrine hydrochloride and ephedrine sulphate. The Laboratory's report shows that the ephedrine hydrochloride of the Abbott Laboratories and of Burroughs, Wellcome & Co. meet the provisional standards, but that a pure sulphate has not yet been prepared. However, it appears that the study which is being made in the laboratories of Eli Lilly & Co., gives promise that a satisfactory product will shortly be available. The Council (1) endorsed the report of the A. M. A. Chemical Laboratory and provisionally adopted the submitted standards for ephedrine hydrochloride; (2) it admitted ephedrine to New and Non-official Remedies; (3) it voted to accept the ephedrine

hydrochloride of the Abbott Laboratories when acceptable advertising is issued; (4) it voted to accept the ephedrine hydrochloride of Burroughs, Wellcome & Co., when it is marketed in the United States and acceptable advertising is issued; and (5) it voted to accept Ephedrine Sulphate—Lilly (formerly called "Fedrin") when the firm has achieved satisfactory standards and when the advertising is found acceptable. (Jour. A. M. A., Feb. 12, 1927, p. 482).

Some Miscellaneous Nostrums.—The A. M. A. Chemical Laboratory reports the analysis of the following: Balzone Treatment for Tuberculosis, exploited by one N. L. Waelchli, Denver, Colorado, appeared to be essentially a little colored water into which a few drops of some volatile oil, similar to pine oil, was to be dropped, the water brought to a boil, and the steam inhaled. Spray-O-Zone, exploited by the Coral Chemical Company, Inc., Buffalo, N. Y., appeared to be essentially borax and potassium chlorate dissolved in water. Boals Rolls, exploited by the Boals Rolls Corporation, New York City, consisted of large tablets found to contain starch, figs and phenolphthalein. Harriet Hubbard Ayer's Face Cream, manufactured by Harriet Hubbard Ayer, New York, was found to contain ammoniated mercury and zinc oxide. (Jour. A. M. A., Feb. 12, 1927, p. 501).

The "Adjusto" ("Juvenator").—This is another indecent swindle barred from the mails. One G. R. Damiani, who seems to have done business variously under such trade names as G. Lotto, Olds Appliance, Wisett Manufacturing Co., and Sampson Manufacturing Co., all of St. Louis, Mo., have exploited the device called the "Adjusto" and the "Juvenator." Now a fraud order has been issued against the Sampson Manufacturing Company and G. R. Damiani. (Jour. A. M. A., Feb. 12, 1927, p. 501).

Parathyroid Extract and Lead Poisoning.—Experiments have been made which indicate that parathyroid extract-collip mobilizes from the bones a certain amount of stored lead which is readily available. Since the amounts of lead excreted following this treatment were far greater than those obtained in previous investigations, when ammonium chloride or phosphoric acid were given, the method will probably have some therapeutic value in the treatment of lead poisoning. (Jour. A. M. A., Feb. 19, 1927, p. 572).

The Oritone Laboratories.—"Oritone," an alleged aphrodisiac, sold by the Oritone Laboratories, Kansas City, Mo., has been declared a fraud by the Post Office authorities. Like many other nostrums that have, in the past, been sold by fraudulent medical mail-order concerns, Oritone, according to the government's report, was obtained from George A. Breon and Company, a concern that occasionally appeals to physicians in the pose of a reputable pharmaceutical house. The formula, according to the federal authorities, was: gaduol, 1 mm., thyroid substance, 1/12 gr., lecithin, 1/8 gr., suprarenal substance, 1/5 gr., extract nux vomica, 1/6 gr., pituitary substance, 1/24 gr., yohimbine hydrochloride 1/12 gr. The evidence of the federal authorities showed that the use of the drugs contained in Oritone, either singly or in combination, will not and cannot relieve or cure "lost manhood" or rejuvenate the aged. (Jour. A. M. A., Feb. 19, 1927, p. 585).

Medicago Sativa and Medicago Abrus Compound.—According to the advertising of M. L. Howe, Indianapolis, each tablet of Medicago Sativa (Howes') is "equivalent to 120 gr.", presumably of Medicago sativa. Each tablet of Medicago Abrus Compound is said to contain Abrus precatorius 2 gr. and Medicago sativa 10 gr. In the price list, Medicago Sativa

(Howes') is said to be "Tonic, Aphrodisiac, Diuretic, Galactagogue. Especially indicated in prostatic troubles, and cystitis, or any pus condition of the genito-urinary tract, including gonorrhea." The advertising states further that the firm has reports of its great benefit in diabetes. The firm further states that the combination contained in the Medicago Abrus Compound gives a remedy unsurpassed for diabetes. Medicago Sativa is a botanical name for the plant that yields alfalfa. Abrus precatorius is a name for Jambul seed. The value of "Medicago Sativa (Howes') may be estimated by the following from a report of the Council on Pharmacy and Chemistry: "Alfalfa is a good cattle feed, but only nostrum exploiters have suggested its use as a medicine for human beings." Jambul was in vogue many years ago as a remedy for diabetes. It was tried, found wanting, and relegated to the therapeutic scrap heap. (Jour. A. M. A., Feb. 19, 1927, p. 588).

Deterioration of Anesthetic Ether.—According to the U. S. Pharmacopeia X: "Ether to be used for anesthesia must be preserved only in small, well closed containers, and is not to be used for this purpose, if the original container has been opened longer than twenty-four hours." The impurities found in ether are due to the presence of air and moisture, and the action of daylight, which leads to complex oxidations. Among the products found are hydrogen peroxide and most commonly irritant aldehyde. (Jour. A. M. A., Feb. 19, 1927, p. 588).

Uselessness of Insulin by Inunction.—Attempts to give insulin by mouth, perlingually, by duodenal tube, intratracheally, by inhalation, and by rectum, either in solution or in suppositories, have given results which in the main are either mechanically difficult, inconclusive, inconstant, or wasteful of the drug. An investigation has recently been made to decide whether insulin inunctions would be of any value in the treatment of human diabetes. As much as 1,000 units of insulin dissolved in almond oil was rubbed for a period of one hour into the skin of the abdomen, chest and arms with entirely negative results. Other vehicles were used with equally negative results. On the basis of this evidence the conclusion must be that insulin inunctions "are useless as a therapeutic measure." (Jour. A. M. A., Feb. 26, 1927, p. 652).

Book Announcements

Report on Third International Congress of Military Medicine and Pharmacy. Paris, April, 1925. By COMMANDER WILLIAM SEAMAN BAINBRIDGE, M. C., U. S. Naval Reserve Forces, Member of Permanent Committee, Delegate from the United States. Reprinted from *The Military Surgeon*. May to August, 1926, inclusive. Washington, D. C. 1926.

Diseases of Women. By HARRY STURGEON CROSSEN, M. D., F. A. C. S., Professor of Clinical Gynecology, Washington University Medical School, and Gynecologist in Chief to the Barnes Hospital and the Washington University Dispensary, St. Louis, etc. Sixth Edition, revised and enlarged. St. Louis. The C. V. Mosby Company. 1926. Octavo of 1005 pages, with 934 engravings, including one color plate. Cloth. Price, \$11.00.

Physiology and Biochemistry in Modern Medicine. By J. J. R. MACLEOD, M. B., LL. D. (Aberd.), D. Sc. (Tor.), F. R. S., Professor of Physiology

in the University of Toronto, Toronto, Canada; formerly Professor of Physiology in the Western Reserve University, Cleveland, Ohio. Assisted by Roy G. Pearce, A. C. Redfield, N. B. Taylor, and J. M. D. Olmsted and by others. Fifth Edition. St. Louis. The C. V. Mosby Company. 1926. Octavo of 1054 pages, with 291 illustrations, including nine plates in colors. Cloth. Price, \$11.00.

An Introduction to the Practice of Preventive Medicine. By J. G. FITZGERALD, M. D., LL. D., F. R. S. C., Professor of Hygiene and Preventive Medicine and Director School of Hygiene and Connaught Laboratories, University of Toronto. Assisted by PETER GILLESPIE, M. Sc., C. E., M. E. I. C., Professor of Civil Engineering, University of Toronto, and H. M. LANCASTER, B. A. Sc., Chief Dominion Analyst, Department of Health, Canada, Ottawa, etc., and Chapters by Andrew Hunter, A. H. W. Caulfield, J. G. Cunningham, and R. M. Hutton. Second Edition. St. Louis. The C. V. Mosby Company. 1926. Octavo of 792 pages. Cloth. Price, \$7.50.

Shell Shock and Its Aftermath. By NORMAN FENTON, Ph. D., Associate Professor of Psychology, Ohio University; formerly at Base Hospital 117, A. E. F., and with the National Committee for Mental Hygiene, with an Introduction by THOMAS W. SALMON, M. D., Professor of Psychiatry, Columbia University; formerly Senior Consultant in Neuropsychiatry, A. E. F., and Medical Director of the National Committee for Mental Hygiene. St. Louis. The C. V. Mosby Company. 1926. Octavo of 173 pages. Cloth. Price, \$3.00.

The Normal Child and How to Keep it Normal in Mind and Morals. Suggestions for Parents, Teachers and Physicians; with a Consideration of the Influence of Psychoanalysis. By B. SACHS, M. D., New York. Paul B. Hoeber, Inc., New York. 1926. 111 pages. Price \$1.50.

Practical Surgery of the Joseph Price Hospital. By JAMES WILLIAM KENNEDY, M. D., F. A. C. S., Surgeon to the Joseph Price Hospital, Philadelphia; formerly in charge of the Gynecological and Obstetrical Department of the Philadelphia Dispensary, etc. Philadelphia. F. A. Davis Company, Publishers. 1926. Octavo of 861 pages. Illustrated with 129 original half-tone plates. Some in colors. Cloth. Price, \$10.00 net.

Transfusion of Blood. By HENRY M. FEINBLATT, M. D., Assistant Clinical Professor of Medicine, The Long Island College Hospital, Brooklyn, N. Y.; Author of "Clinical Laboratory Medicine," etc. New York. The Macmillan Company. 1926. Octavo of 137 pages. Illustrated by twenty-four engravings. Cloth.

International Clinics. A Quarterly of illustrated Clinical Lectures and Especially Prepared Original Articles in all Branches of Medicine and Surgery. By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia. VOLUME IV. Thirty-sixth Series, 1926. Philadelphia and London. J. B. Lippincott Company. 1926. Octavo of 308 pages with illustrations. Cloth.

Betterment of Life Insurance Service. Proceedings of the Twentieth Anniversary Convention of The Association of Life Insurance Presidents. Held in

the Hotel Astor. New York, N. Y., December 9 and 10, 1926.

Four Thousand Years of Pharmacy. An Outline History of Pharmacy and the Allied Sciences. By CHARLES H. LAWALL, Ph. M., Phar. D., Sc. D., F. R. S. A., Professor of Theory and Practice of Pharmacy and Dean of the Philadelphia College of Pharmacy and Science; Joint Editor of the Seventh Edition of Remington's Practice of Pharmacy; Member of the Revision Committee of the U. S. Pharmacopeia, etc. Philadelphia and London. J. B. Lippincott Company. Octavo of 665 pages, with 64 illustrations, mostly from original sources. Cloth. Price, \$5.00.

The Specialties in General Practice. Compiled by FRANCIS W. PALFREY, M. D., Instructor in Medicine at Harvard University. In Collaboration with various authors. Philadelphia and London. W. B. Saunders Company. 1927. Octavo of 748 pages. Cloth. Price \$6.50 net.

If the welfare of the patient is the ultimate ideal in the practice of medicine then it seems to us the doctor's horizon of knowledge should be extended rather than circumscribed, as seems the tendency in this era of highly developed specialization.

As a means to this end Dr. Palfrey, in collaboration with fourteen of the leading teacher-specialists of Harvard University Medical Department, has prepared an unusual book covering the specialties: Dermatology, Urology, Gynecology, Eye, Ear, Nose, Throat, Orthopedics, Pediatrics, Psychiatry and Surgery—an average of sixty-five pages to each specialty.

A doctor may be justified in refusing to treat conditions outside his domain but the patient is surely entitled to expect that he should have a reasonable knowledge of the ordinary afflictions to which humanity is subject. A pathetic case illustrative of this deficiency: A woman past fifty years of age was being treated for rheumatism; as a last resort the family physician advised a trip to Hot Springs. There a casual examination revealed an ordinary case of so-called flat-foot. It is not too much to say that any doctor should be able to recognize this condition—at least to advise a patient where to go for treatment.

For the doctor, be he a general practitioner or specialist, who wants to be helpful to his patients, here is a book of surpassing merit, as it embraces at least "what every doctor should know."

H.

The Modern Practice of Pediatrics. By WILLIAM PALMER LUCAS, M. D., LL.D., Professor of Pediatrics, University of California Medical School; Author of "The Health of the Runabout Child," "Children's Diseases for Nurses," etc. New York. The Macmillan Company. 1927. Octavo of 962 pages. Illustrated. Cloth. Price \$8.50.

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Editorial

Goiters.

One may use the plural in discussing this subject because the classification of goiter is a matter of extreme importance. Like many other medical problems in disease, so much has been written, and so many angles of approach have been taken, that the classification of goiter disease-entities has never yet become standardized. In fact, the misunderstanding of the nature of goiters and the causes of them, has brought about a wide difference of opinion in the classification by various writers. But for our purposes, at this time, we shall turn to Plummer as our referee and source for much that is submitted in this column in the discussion of disease of the thyroid and the use of iodine. Plummer's paper in the 1925 Collected Papers of the Mayo Clinic, beginning on page 475, is the article to which we refer and it is recommended to our readers.

The best grouping of thyroid-disease, as we understand it today, can be obtained by classifying goiters into two general types: I. Endemic, and II. Exophthalmic; by subdividing endemic goiters into (1) diffuse colloid and (2) adenomatous; and, further by grouping adenomatous goiters into (a) those with hyperfunction and (b) those without hyperfunction.

Diffuse colloid goiter results from storage of an excess of colloid substance. Iodine, being inadequate for thyroid functioning, with a resulting deficiency in thyroxine output, hypothyroidism is produced. This brings about extraordinary thyroid action and hypertrophy. This alters the secretory processes of the gland

and there results storage of colloid in excess of normal. Iodine, therefore, either relative or absolute, seems necessary for normal thyroid function and its absence stimulates the deposition of colloid, with a resultant hypothyroidism and a lower basal metabolic rate. Colloid goiter, in majority of instances, occurs in latter half of the second decade.

Adenomatous goiter results from a sustained stimulation of the thyroid in conjunction probably with unknown factors. Adenomatous goiter and nodular goiter, used synonymously, either elaborates and puts out an excess of thyroxine or stimulates surrounding thyroid tissue to hyperfunction of this substance. The actual process is not known but it is supposed that adenomatous tissue is characterized by over-function of thyroxine.

The evolution of adenomatous goiter reaches back in colloid goiter, oftentimes. Compensating ultimately, adenomatous tissue, at first, elaborates and stores colloid; later, in the latter half of the third decade becomes hyperfunctional in the production of thyroxine. Only 5 per cent, for instance, adenomatous thyroids in the Mayo Clinic, are under thirty years of age; although there may have been thyroid enlargement observed, for some years prior to this period—conceivable during colloid era.

Hyperthyroidism of adenomatous goiter is probably due to an excess of the normal active agent of the thyroid in body tissues: because the early signs are those merely of an elevation of metabolism. These reactions disappear promptly, in three weeks after an enucleation of adenoma: like reactions are noted following administration of desiccated thyroid or thyroxine in normal persons.

Exophthalmic goiter results from an intensive stimulation of an unknown origin, primarily of a normally functioning thyroid. This produces a diffuse hypertrophy, capable of an abnormal amount of thyroxine elaboration: "under this unknown stimulation, acini, which are possibly more or less new, develop." But this is distinguishable and different from adenomatous tissue "frequently present before the onset of exophthalmic goiter." In the Mississippi Valley, where incidence of endemic goiter is high, 30 per cent of exophthalmic goiters are superimposed on adenomatous goiters. Much speculation has arisen over the effort to discover the nature of this unknown factor in exophthalmic goiter. This unknown factor probably produces the ocular signs, the

nervous phenomena and the crises of the disease.

The hypothesis, that these characteristic symptoms of exophthalmic goiter are due to an abnormal agent, in addition to a total and relatively normal secretion of the gland, is the one which assumes the incomplete iodized thyroxin molecule to be elaborated and driven from the over stimulated gland. It appears then, to restate the theory that an unknown stimulation produces hyperplasia of thyroid cells; that this enlarged thyroid produces thyroxin plus an abnormal product; that these, total and relative amounts of thyroxin and the abnormal product, delivered from the thyroid, are determined by the intensity of thyroid stimulation of iodine supply and compensatory functional accomplishments of the thyroid gland itself.

Thus the exophthalmic goiter produces an excess amount of thyroxin which, in turn, brings about an increase of basal metabolic rate; it also produces in connection with the stimulation of goiter cells an unknown agent (may be, an incompletely iodized thyroxin molecule) which, coincidentally, excites certain specific ocular and nervous symptoms. The alternations of exacerbations and remissions in these symptoms are attributed to fluctuations in elaborations of this unknown perverted thyroid secretion. The basal metabolism curve may run parallel with these exacerbations of specific symptoms, but it may not. This is explained on the two product theory in the etiology of exophthalmic goiter by varying intensity of thyroid stimulation, through the iodine supply, through the fatigue or compensation in function of thyroid, as well as through unknown conditions.

Iodin Administration in Goiters.

In view of the foregoing observations on goiters of several classes, all of which have relation to iodine utilization in the production of thyroid secretion (thyroxin), so essentially connected with body metabolism, energization, and well-being, it appears not unwise to comment briefly upon the administration of iodine in each of the types of goiter; endemic and exophthalmic. There are definite benefits to be derived in iodine administration in some ways; and there are, contrary-wise, harmful effects produced in iodine administration in other ways. In 1914, 1917 and 1918, Kendall separated, determined and proved the chemical

formula of the active agent of the thyroid, and called it, thyroxin. Thyroxin is by weight 65 per cent iodine. Thyroid receives its iodine from the blood and elaborates thyroxin. The thyroid delivers thyroxin to the blood for distribution in the body cells; where it performs its catalytic function in metabolism. Thyroxin, in normal persons, is hence active in all the cells of the body; it hastens the rate "of formation of a quantum of potential energy available for transformation on excitation of cells". The average normal person has about 14 mg. of thyroxin, but thyroid delivers only approximately 0.33 mg. of thyroxin daily. There probably exists here, as in all other organs, a wide margin of reserve and powers of compensation.

The state of hypothyroidism stimulates thyroid cells to produce thyroxin and intensive thyroxin manufacture is instituted and, unless an adequate iodine supply is forthcoming, thyroid cell function is strained. Diffuse hypertrophy of cells results. Upon such a general thyroid stress as hereby brought about, pathologic changes follow, resulting early in colloid deposit, later in adenomatous, and exophthalmic goiters. Each goiter sets up a train of symptoms as displayed by a low basal metabolic rate and myxedema, of colloid goiter; in high metabolic rate and nervousness, and structural changes of adenomatous (toxic) goiter; in high metabolic and low metabolic rates, with specific ocular and nervous syndromes, and crises of exophthalmic goiter.

Iodin in Colloid Goiter.

Iodine administration hence plays a telling part in the prevention and alleviation of early and primary colloid enlargement. In colloid goiter, with its deficiency of thyroxin output, iodine is helpful and curative. Iodine treatment in goiter dates back to ancient history, for its use in enlarged thyroid cases had been found efficacious. Reduction in size and disappearance of goiter, during and following its use, had warranted the opinion that it was curative. But no adequate discrimination had been made. Some enlarged thyroid cases it was noted were not improved; some appeared to be made worse following its prolonged use. The conflicting results made for confusion and iodine was considered an unreliable therapeutic agent. This occurred because of a failure to understand the types and pathogenesis of the thyroid enlargement. It was this differ-

entiation, that the work of Plummer, Kendall, Marine and Kimball, McCarty and others clarified and placed iodine therapy in goiter on a more rational basis.

Iodine in Adenomatous Goiter.

Plummer says on this subject, "I am still of the opinion that administration of iodine causes adenomatous thyroids to hyperfunction." He further says that the treatment of hyperfunctioning adenomatous thyroids is essentially surgical. On these two statements one may rest the case of nodular (toxic) adenomatous thyroid. But the question of mixed colloid, and adenomatous hyperfunctioning, thyroid and the use of iodine can only be settled by a careful diagnostic inquiry in basal metabolic rate. It is very likely true that some colloids, which are beyond the adolescent stage, mixed with adenomatous pathology, are stimulated to hyperfunction by the over-use of iodine. In this way an innocent thyroid may be made toxic.

In no period of life is there needed a more careful diagnostic inquiry in all goiter cases than in the second and third decade. Adenomatous goiter producing an excess of thyroxine, shows an increased metabolic rate. Iodine in these cases is extremely harmful. In all adenomatous goiters, basal metabolism is needed to aid in determining the fact whether or not there is already hyperfunction.

After all, adenomatous goiter is essentially a surgical condition.

Iodine in Exophthalmic Goiter.

Plummer believes that iodine has a place here. Iodine and surgery work best together in these cases. He gives iodine in large doses. The use of iodine has decreased the surgical mortality from approximately 3.5 per cent to approximately 1 per cent.

Iodine goes hand in hand with surgery or, at least, it should be administered in large doses before surgery in order to best prepare the patient and afterwards in order to best protect the patient from recurrence of specific symptoms. One may well read Plummer's studies on this subject and may do well to receive his arguments, therein laid down, with due credence.

News Notes

Home for Richmond Academy of Medicine.

How long the Richmond Academy of Medicine has been in existence is not known. There is, however, a letter extant, written in 1818, in which the writer, a young physician, tells his correspondent that he hopes to be admitted to membership in a body of that name shortly.

So far as this writer is aware, no records of the organization prior to 1890, exist; but he has been informed that some years previous to that date, a schism occurred, the seceding members forming the Richmond Medical and Surgical Society. Early in 1890, the breach was healed, the Richmond Academy of Medicine and Surgery being the result. In 1923, the original title, the Richmond Academy of Medicine, was re-assumed; and in February, 1927, the organization was incorporated under the laws of Virginia, the incorporators being Drs. J. Allison Hodges, Fred M. Hodges, C. C. Coleman, A. Murat Willis, Stuart Michaux, Mark W. Peyser, James H. Smith, James K. Hall and Stuart McGuire.

The curious one, browsing among the records from 1890 to the present time, would be struck by the fact that every president nursed the hope that the Academy would soon own a home. The frequent change in meeting-place was unsettling and, consequently, no matter how interesting were the programs, the attendance decreased and members lost interest. Another and potent factor contributing to the decrease in attendance was the formation of the staff clubs of the various hospitals.

At times the hope of a home almost was realized. Various committees selected sites that even today would be almost ideal; but even then, though the price of real estate was very low as compared with what obtains at present, the necessary amount was never forthcoming.

It was not until Dr. Joseph L. Miller, of Thomas, West Virginia, of Virginia parentage, and a graduate of the old University College of Medicine, offered his library and collection of medical antiquities on condition that their housing be fireproof, that a few lovers of books, notably Drs. James H. Smith, James K. Hall and Wyndham Blanton, after viewing the rare and magnificent tomes, returned and, like the spies out of Canaan, told in glowing words of the wonders they had seen. Their enthusiasm was infectious; the Board of Trustees recommended acceptance of the gift

A good traffic rule on the road of life:
when you meet temptation,
Turn to the right.

and the erection of a fireproof building to house it. The Academy accepted the recommendation, and a committee on library, with Dr. Stuart McGuire as chairman, was appointed. So active has this committee been, that nearly two-thirds of the amount necessary has been subscribed, and plans providing for a library room, committee rooms, lockers, and all other things that go to make such a building complete, are being drafted.

The site chosen is at the northeast corner of Twelfth and Clay Streets, facing fifty feet on Clay and sixty feet on Twelfth Street. An auditorium and library building in harmony with the Academy's home will be erected adjacent to and connecting with it, by the Medical College of Virginia, the two forming a whole; and it is hoped that the group will be ready for occupancy within eighteen months.

The home will face the Confederate Museum, the former White House of the Confederacy. Across Twelfth Street is the main building of the Medical College of Virginia, and diagonally opposite is the handsome structure of the Juvenile and Domestic Relations Court. Other public buildings in the neighborhood are the Valentine Museum, the Virginia Mechanics Institute and the Sheltering Arms Hospital, all forming a sort of civic center.

Certain it is that through pride of ownership, the Academy's usefulness will be heightened, its attendance will be increased and membership therein will be more highly valued; and its unique library and collection of medical antiquities will be a Mecca for those who have the love of books in their hearts.

MARK W. PEYSER.

Councilor in Seventh District.

Dr. B. B. Dutton, Winchester, Va., has been appointed a member of the Executive Council of the Medical Society of Virginia from the Seventh Congressional District, to succeed Dr. Walter Cox, deceased.

American Medical Association.

In slightly over a month, the American Medical Association is to hold its annual meeting in Washington, D. C. It should be a great occasion for Virginia physicians and we count on a large attendance from this State. It being impossible for us to entertain this Association on account of its large attendance, our doctors should consider it a privilege for it to meet practically at our doors and should make an effort to attend as many of the sessions as possible, to imbibe some of the en-

thusiasm to be derived from such meetings as well as to attend the various sections in which they may be interested.

In addition to the usual scientific and business sessions, there will be entertainments and sight-seeing. The American Medical Golfing Association is also planning a tournament and any male fellow of the American Medical Association is privileged to join the Golfing Association. Applications for enrollment and entries to play should be sent to the Business Secretary, Dr. John L. Walter, 1507 Hunman Avenue, Evanston, Ill., before formal entries close May 1. After that, they should be sent to Dr. W. J. Cusack, 1849 Kalorama Road, Northwest, Washington, D. C.

The Walter Reed Memorial Commission of the Medical Society of Virginia.

At a meeting held in Richmond, early in April, adopted a resolution empowering its chairman, Dr. E. C. S. Taliaferro, of Norfolk, to appoint local chairmen in the various sections of the State to raise \$2,500 for the restoration and fencing in of Belroi, home of Walter Reed in Gloucester County, Virginia. The Medical Society of Virginia, at its meeting last Fall, appropriated money for the purchase of this home and the deed has been recorded and properly transferred to the Commission but the house is in urgent need of repairs on account of disintegration from time and souvenir hunters.

Meeting in Washington.

The Walter Reed Memorial Commission will have a general meeting in Washington, during the meeting of the American Medical Association. At this meeting will be representatives from the various State medical societies, to discuss ways and means of raising funds for an endowment in honor of Walter Reed.

May Day—Child Health Day—

Will be celebrated in nearly every community in Virginia some time during the month of May. Governor Byrd has issued a proclamation to this effect and school teachers, health officers and others interested in the welfare of children will assist, that this old Spring Festival may be used to measure the gifts of health and happiness of the children of this State.

Last year, sixty-three counties and fifteen cities had celebrations varying from the individual school festival to the county or city-wide event. It is hoped this year that practically every community in the State may participate in the celebration sometime during the

month of May. On page 52 in this issue of the MONTHLY we are publishing an article about the five-point child and Child Health Day. Other suggestive material for the celebration may be obtained from Dr. Mary E. Brydon, of the State Board of Health, Richmond, Va.

Hygienic Exposition and Medical Congress In Warsaw.

From May 30th through June 4th, there will take place in Warsaw, Poland, the Fourth International Congress of Military Medicine and Pharmacy in conjunction with the International Hygienic Exposition, which will be held from May 30th through June 20, 1927.

The Richmond Pediatric Society,

At its regular meeting, March 31, elected the following officers for the ensuing year: President, Dr. Howard Urbach; vice-president, Dr. Basil B. Jones; secretary-treasurer, Dr. W. Ambrose McGee. At this meeting, papers were read by Drs. Thomas D. Jones and James B. Stone.

Address Future Farmers.

At the father-son banquet of the Courtland (Va.) Farm Sprouts, the latter part of March, Drs. R. L. Raiford, of Sedley, and W. T. McLeMore, of Courtland, were among those who gave short talks.

Dr. E. L. Kendig to Run for Senate.

It is announced that Dr. E. L. Kendig, of Victoria, at present State senator from the Ninth Senatorial District, will be up for re-nomination in the August primary.

Dr. and Mrs. R. T. Givens,

Of Glen Wilton, Va., were recent visitors in Richmond, at which time Dr. Givens was a delegate to the Educational Conference held here.

Married.

Dr. Charles Perry Howze, of Danville, Va., and Miss Hannah Morris Keith, of Fairfax, Va., March 19th.

Dr. S. E. Hughes, Jr., Danville, Va., and Miss Sarah Hall, of Onancock, Va., March 19.

Post-Graduate Clinics.

The first of a proposed series of post-graduate clinics will be held at the University of Virginia Hospital, Charlottesville, Virginia, on Thursday, Friday and Saturday, April 28, 29 and 30, 1927. The clinics, which will be devoted chiefly to diagnosis, will be given by members of the Medical Faculty of the University of Virginia. The last day, Saturday, will be given over to the Virginia Society of

Otolaryngology and Ophthalmology, which meets there at that time.

All members of the medical profession are cordially invited to attend. A detailed program of the meeting will be mailed to the physicians of the State.

Badges Used to Stimulate Diphtheria Immunization.

The California State Board of Health announces through a recent *Bulletin* that the city health officer of San Francisco adopted the policy of giving a bright colored button as a badge to each child who has received the three doses of toxin-antitoxin, as a means of stimulating enthusiasm in diphtheria immunization. The bright colored button appeals to the children and its use by some has developed a strong desire for ownership in others.

Hospital Clinical Congress of North America.

Marquette University College of Hospital Administration has announced plans for the holding of the Hospital Clinical Congress of North America the week of June 20th to 24th inclusive, in Milwaukee.

The Rev. C. B. Moulinier, regent of the College of Hospital Administration, states that Marquette University has been working for some time preparing for the congressional exposition. The plan is to set up in the Auditorium in Milwaukee complete working exhibits of modern hospital equipment and demonstrate their use under actual conditions. It will be the first attempt to institute a "working" clinic, demonstrating the most modern advances in hospitalization.

There will be four distinct departments: Hospital, Public Health, Safety and Research. The Congress will be vitally interesting to all persons interested in hospitalization. Many of the most prominent medical and hospital leaders in the country will be in Milwaukee for this Congress.

Saving Children from Diphtheria.

New Haven, Conn., seems to have found a pleasant and effective way to spread the gospel of diphtheria prevention. The health officer sends to each baby in the city on his first birthday a pretty birthday card, with a letter to the parents calling attention to the importance of protecting the child against diphtheria. The city reported but one death from the disease during 1926.

In this connection, the Metropolitan Life Insurance Company reports for the year 1926 a new low death rate for diphtheria among

its policyholders. It asserts that there is no good reason why the mortality from this scourge of childhood should not continue to decrease until it becomes negligible.

Dr. S. G. Miller,

Of the class of '25, Medical College of Virginia, upon completion of his service at the Chesapeake and Ohio Hospital, at Clifton Forge, Va., located at Bacova, Va., where he is physician for the Tidewater Hardwood Corporation.

The Virginia Society of Oto-Laryngology and Ophthalmology

Will hold its annual meeting in Charlottesville, April 30, 1927, under the presidency of Dr. C. M. Miller, of Richmond. Dr. Fletcher D. Woodward, of Charlottesville, is secretary-treasurer. This society now numbers about eighty members and the officers are anxious to have all Virginia doctors eligible for membership join them. An interesting program is being arranged. Dr. J. W. Jervey, of Greenville, S. C., is among the invited guests.

Dr. S. P. Hileman,

Recently of Lexington, Va., is now located at Millboro, Va.

The American Surgical Association

Will hold its annual meeting in Richmond, on May 12, 13 and 14. Dr. Harvey Cushing, Boston, is president, and Dr. Robert Greenough, Boston, secretary. This society has a membership of about one hundred and fifty members and a large number of these are expected at the Richmond meeting.

Relationship of the Physician to the Public.

A Primer on this subject was issued by the *Journal of the Medical Society of New Jersey* early this year. It is in the form of a "shorter catechism" on medicine and is both interesting and instructive. The Journal is to be congratulated on its excellent exposition of this subject.

Doctors Interested in Rappahannock Valley, Inc.

At the meeting of the Rappahannock Valley, Inc., at Tappahannock, Va., the latter part of March, the following doctors were among those selected as directors: Dr. H. A. Tabb, Gloucester; Dr. J. H. Lowe, Welcome, and Dr. F. W. Lewis, Morattico.

Protecting Babies From Blindness.

About sixteen years ago physicians in this country began the general practice of dropping a medicinal solution in the eyes of new-born babies in order to prevent ophthalmia neona-

torum, or blindness resulting from eye infection at birth. The treatment is proving effective, for while 25 years ago one of every three children in the schools for the blind in the United States was blind from this cause, in 1926 the proportion had been reduced to about one out of every ten.

As an indication of the success which may follow special efforts by the health authorities, Maryland's two State schools for the blind reported not a single pupil admitted in 1925 who was blind from this type of eye infection. The State has made the disease reportable, like diphtheria or smallpox, and its board of health supplies the preventive solution to physicians free of charge.

Child-Bearing Need Not Be a Dangerous Occupation.

The New York Maternity Center Association takes care of pregnant women, and last year—1926—it was so successful in this work that not a single one of the 2,000 mothers cared for died as the result of childbirth. If this group had shown the same maternal death rate as that for the city in general, 8 or more of the 2,000 would have lost their lives. The association formerly gave care exclusively to poor women, but last year it offered its services to mothers of the professional and salaried classes and nearly 200 such mothers took advantage of them.

Dr. Conway Hiden,

Recently resident obstetrician and gynecologist at the University of Virginia Hospital, left April the 1st for Kentucky, where he went to accept a position as surgeon to the Consolidation Coal Company with offices at Burdine, Ky.

Virginia Working to Banish Diphtheria.

During the last six months of 1926, more than 35,000 children in this State were immunized against diphtheria, according to the State Board of Health, and a special drive for protecting the children is being undertaken by the Board, this year. For the first two and a half months this year, the number of completed immunizations was more than half of the total of last year. County medical societies and civic organizations all over the State are becoming interested in this protective work and are aiding public health authorities in organizing and conducting clinics, so that great advance in this work is counted on during 1927.

Dr. and Mrs. Victor C. Vaughan,

Of Michigan, have been on a visit to their son and daughter-in-law, Dr. and Mrs. Warren Vaughan, Richmond. Dr. Vaughan, for many years dean of the Medical School of the University of Michigan, but more recently a director of the National Research Council, has only recently returned from the Orient. While in Japan, he attended the Pan-Pacific Scientific Congress as representative of the Department of State of the United States and of several national organizations.

Dr. T. H. Massey,

Recently of Suffolk, Va., has located in Smithfield, Va.

The American Association for the Study of Allergy

Is to hold its fifth annual meeting in Washington, D. C., May 16 and 17—the first two days of the meeting of the American Medical Association—with headquarters at the Washington Hotel. Dr. Karl K. Koessler, of Chicago, is president, and Dr. Albert H. Rowe, of Oakland, Calif., is secretary-treasurer. An interesting program has been arranged and a subscription dinner will be had on the evening of the 16th, at which time Dr. Arthur F. Coca, of New York City, will be the speaker. All physicians interested in the subject of allergy are invited to attend the daily sessions and to be present at the dinner. Reservations for the dinner may be made through the secretary, Dr. Albert H. Rowe, 242 Moss Avenue, Oakland, Calif. A check of \$4.00 for the dinner should accompany each reservation.

This association has only a small number of Southern doctors in its membership at present. The members in this section are Dr. Warren T. Vaughan, of Richmond and Drs. Harry S. Bernton and Grafton T. Brown, of Washington, D. C.

Care of New York's Crippled Children.

New York has recently organized a crippled children's bureau in its State department of education. This bureau is to maintain a register of all physically handicapped children (not including the deaf and the blind) and to devise a plan of co-operation among children's court judges, county officials, local school authorities, private and public agencies, and parents. On the order of the children's court, the counties are to be chargeable with the cost of the physical care and education of such children, but they will be reimbursed by the State for one-half such expenditure if the order is approved by the State commissioner of health.

"Sun-Babies".

The Federal Children's Bureau sometimes presents in the popular form of a "movie" the practical lessons learned during a long and painstaking investigation. Its latest film is called "Sun-Babies", in which a number of attractive toddlers do their "stunts" before the camera and show how Father Sun with his bright rays can straighten rickety legs and arms and backs which have become weak and curved because of poor food and lack of sunlight. And these interesting youngsters are no Hollywood heroes, but just ordinary children who were treated during a three-year study of rickets in New Haven, Conn. The picture tells graphically how the mother can give her baby sun baths whether she lives in a city apartment, in the suburbs, or on a farm. The terms on which the film may be loaned or purchased can be learned on application to the U. S. Children's Bureau, Washington, D. C.

The Virginia State Dental Association

Is to hold its fifty-eighth annual meeting at Virginia Beach, Va., May 9, 10 and 11, with headquarters at the new Hotel Cavalier. Dr. W. N. Hodgkin, of Warrenton, is president, and Dr. A. M. Wash, of Richmond, is secretary-treasurer. An interesting program to include both papers and clinics has been arranged.

Dr. E. W. Peery,

Formerly of Lynchburg, Va., will reside in Florida for a few years on account of the illness of his son. Dr. Peery is practicing his specialty, diseases of the eye, ear, nose and throat, at West Palm Beach, Fla.

Dr. Hugh S. Cumming,

Surgeon-General of the United States Public Health Service, will be the commencement speaker at the Medical College of Virginia at Richmond on Tuesday, May 31st. Doctor Cumming is an alumnus in medicine both of the University of Virginia and the Medical College of Virginia.

Dr. Clarence Porter Jones,

Of Newport News, Va., spoke on the work of Dr. Walter Reed before one of the women's organizations of that city, early in March.

Italy's Child-Welfare Work.

Courses for graduate physicians and for midwives on prenatal and postnatal care were opened in January by the National Bureau for Maternity and Infant Welfare of Italy. Di-

plomas showing satisfactory completion of the prescribed course will be required of all applicants for positions with institutions or agencies established or subsidized by the bureau.

Rome's municipal government has arranged to remove adenoids free of charge in the case of public school pupils needing the treatment. It has started a survey to discover all such children, and is undertaking a campaign to familiarize parents with the importance of having adenoids removed.

The Governor of Rome has decreed that special classes for mentally defective children shall be established in that city and be in charge of trained teachers. Pupils who prove delinquent or show no improvement after two years' attendance are to be placed in institutions, provision for which is also made in the decree.

Dr. Robert Hiden,

Of the class of '23, University of Virginia, Department of Medicine, formerly of Boston, Mass., is engaged in the practice of internal medicine in Washington, D. C., where he is associated with Drs. Sterling Ruffin and R. Massie Page, with offices at 1150 Connecticut Avenue.

Summer Clinics, Chicago Medical Society.

The Chicago Medical Society plans to have summer clinics this year and will be supported in this work by many of the largest hospitals in that city. In 1926 registrations were limited to physicians living in Illinois, but accommodations have been increased so that registrations will be open to physicians from other states, this year—as many as can be accommodated, in order of their registrations. The registration fee is \$10 for each two weeks' course, payable at time of registration, and a physician may register for only one course of two weeks. The first course will be from June 13th through June 24th; the second will be from June 27th through July 8th.

Dr. V. W. Quillen,

Of Nickelsville, Va., is spending the months of April and May in New York City, where he is taking post-graduate work in medicine.

The Medical Society of the State of North Carolina

Will hold its annual meeting at Durham. April the 18th to 21st, under the presidency of Dr. John Q. Myers, of Charlotte. Dr. L. B. McBrayer, of Southern Pines, is secretary.

Deaths of Physicians in 1926.

According to the *Journal of the A. M. A.*,

during 1926 it published the deaths of 2,677 physicians of continental United States. The average age of deaths published was 62.8 years. There were twenty-four deaths in the age period of 25-29, and 125 at or above 85 years of age. The largest number of deaths—389—occurred during the age period of 65-69. The largest number of deaths occurred in the month of March. Heart disease was the most common cause of death, cerebral hemorrhage was the second most frequent cause of death, with pneumonia, nephritis and cancer following in the order named.

Dr. Alexander G. Brown, Jr.,

Richmond, has been appointed one of the delegates from the Virginia Society of Colonial Wars to the triennial meeting of the general society to be held in May at Trenton, New Jersey.

Mexico Requires Diphtheria and Scarlet Fever Tests.

Before a child can enter public school or kindergarten in Mexico, the Federal government has ordered that he must be given the Schick test for diphtheria and the Dick test for scarlet fever. Preventive treatment is given in cases of positive reaction, and both tests and treatment are free of charge.

Interesting Statistics About Hospitals.

The sixth annual compilation of statistics concerning hospital service in the United States, as published in the *Journal of the A. M. A.*, states there are now listed in the United States 6,946 hospitals (excluding some not deemed worthy of publication), with a total capacity of 859,445 beds,—an increase of fifty hospitals and 22,869 beds in one year. These statistics show also that there are in the States 327,045 registered nurses, or about twenty-eight to every 10,000 persons, and in addition to these there is a large number of unregistered nurses, the total of which has not been ascertained.

Dr. Gladys Smithwick,

Recently of Roanoke, Va., who was to have left for China for medical missionary work, the last of February, has had her sailing indefinitely postponed because of the present state of affairs in China, and has accepted a position as assistant physician at the Western State Hospital, at Staunton, Va.

Dr. Rees Morgan,

An alumnus of the University of Virginia, after an absence of some months, has returned

there and will be an instructor in obstetrics and gynecology for the balance of this session.

Dr. William Patterson,

For the past several years of Richmond, is now located at Tampa, Fla.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for Junior Medical Officer (Interne), applications to be on file at Washington, D. C., not later than June 30, 1927; also for Graduate Nurse and Graduate Nurse (visiting duty), and for Social Worker (Psychiatric), applications for the latter positions to be rated as received at Washington, D. C., until June 30, 1927.

Applications for associate bacteriologist (medical) should also be on file with the Civil Service Commission at Washington, D. C., not later than May 10, 1927. This examination is to fill vacancy in the Hygienic Laboratory of the Public Health Service at Washington, at \$3,600 a year, and similar vacancies as they may occur at approximately the same rate of pay.

The Paul Lawrence Dunbar Special School, Norfolk, Va.

In 1924 a special school for over-age pupils from the various colored schools of Norfolk, Va., was established and named in honor of the Negro poet, Paul Lawrence Dunbar. The pupils of normal intelligence who will probably have a chance to go to high school are given special coaching to that end. For the others the regular curriculum is supplemented, the girls being taught cooking, sewing, laundry work, and household management, and the boys carpentry and cobbling. The school also has an open-air room for children who are sub-normal physically or show tendencies toward disease.

Dr. Philip S. Roy.

Washington, D. C., has been elected delegate from the Medical Society of the District of Columbia to the Washington meeting of the American Medical Association to fill the unexpired term caused by the resignation of Dr. William Gerry Morgan. Dr. Thomas A. Groover was elected alternate for the same period.

Dr. H. C. Henry,

Superintendent of the Central State Hospital, at Petersburg, Va., gave a talk at the bi-weekly assembly of the students of the

Medical College of Virginia, March 31st, telling of the State's provisions for caring for insane patients.

Dr. Harry D. Howe,

Hampton, Va., with a party of friends from that place, is travelling in South America.

Dr. William C. Gibson,

Suffolk, Va., has been elected commander of the Suffolk Post, American Legion, for the coming year.

Eye Examinations for Preschool Children.

The National Committee for the Prevention of Blindness has manifested its interest in the preschool child by establishing in New York City three centers for examination of the eyes of children between 3 and 6 years of age. Varied methods of procedure are being used in the centers, so that at the close of the study different plans may be recommended to other agencies intending to begin such examinations.

For Sale—

Gosnold Sanitarium, formerly conducted as an institution for the treatment of Nervous and Mental Diseases by Dr. J. A. Strickland, Norfolk, Va. Terms reasonable, requiring only about \$2,000 cash. For further particulars, write Dr. J. A. Strickland, 205 Medical Arts Building Norfolk, Va., care Miss Inez Murfee. (*Adv.*)

Doctor Wanted—

To take over established practice in small town and good rural community. All roads improved, good school. Would like to sell office and modern dwelling. Address "R. X.", care Virginia Medical Monthly. (*Adv.*)

Wanted.

An experienced woman assistant in laboratory, urological, X-ray, electric therapeutics, and secretarial work, desires position in doctor's office. Richmond location preferred. References furnished. Address No. 40, care this journal. (*Adv.*)

Obituary

Dr. Theodore L. Ginn,

Of Goldsboro, N. C., died suddenly in his office while treating a patient, on March 22nd. Dr. Ginn was forty-seven years of age and a graduate from the Medical College of Virginia in 1901. His death was due to apoplexy.

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AN APPRECIATION OF THE LIFE AND WORK OF WALTER REED.

By THE WALTER REED COMMISSION
of the
MEDICAL SOCIETY OF VIRGINIA.

There is no more arresting story of scientific integrity, intellectual courage, and devotion to truth in American annals than the story of the life and work of Walter Reed. This fruitful life was a short life, and forty-eight years of it were spent in preparation for three years of amazing and revolutionary productivity.

Walter Reed's ancestors were of English stock. His immediate forbears were from North Carolina. His father was a Methodist minister. His mother, Pharaba White, was a woman of gentle spirit and forceful character. The family moved early in life from their home in North Carolina into Virginia, and Walter Reed, the youngest of five children, was born in Gloucester County, Virginia, September 13, 1851. The first decade and a half of his life was spent amid the simplicities and frugalities and sincerities of a pastor's home in the countryside of the Old Dominion. Reed was thus fortunate in the stock from which he sprang, the era in which he grew to manhood, and the mood of the society which helped, in some sense, to fashion his ideals and impulses.

Between 1851 and his entrance into manhood in 1876, Virginia and the states of the south generally, triumphed over the ruin and exhaustion of war, and yet somehow clung to the older traditions of simplicity and personality. There was a fine seriousness in the air of the time, calling to youth to realize its highest self in the temper of the modern world and, if need be, to spend itself in the public welfare.

Fortunately for the young embryo scientist, the vicissitudes of a Methodist preacher's life brought the family to Charlottesville, Virginia, the seat of the University of Virginia, where, for three years, he studied in the Academic Department and the Medical School of the University, receiving his degree of Doctor of Medicine in 1868, and attaining the distinction of being the youngest student who ever gradu-

ated from the Medical School then famous, notwithstanding its shortcomings in clinical opportunities, for its didactic excellence and for the demands it made upon its students for industry and persistence, and enveloped then, as now, in an atmosphere of great traditions and lofty spirit.

The young physician spent the seven years between 1868 and 1875 in achieving a second degree in medicine at the Bellevue Hospital Medical School in New York, in interne work in various hospitals, and in service as inspector on the Brooklyn Board of Health. There existed, at that time, among young medicos, an ambition to enter the United States army service, and Reed, following this tendency, successfully passed the army examinations, and, in due time, received his Commission as Assistant Surgeon and First Lieutenant. The next eighteen years of his life is a story of intense labor at fifteen different frontier stations. Reed's strong character and his University training proved their worth during his life as a post surgeon on the western border by helping him to extract from his experience, independence, intellectual clarity, and loyalty to an ideal, which are prime essentials of a great scientist. The trivialities and dissipations of barracks life held no attractions for him. The solitude of the western plains left much opportunity for nursing his inspiration to serve humanity through some important medical discovery. The hardships and privations of his frontier life were nobly shared by his brave wife, Emilie Lawrance, of North Carolina, whom he married in 1876.

Reed utilized his residence in and near Baltimore to study bacteriology, pathology, and physiology at Johns Hopkins, then on the threshold of its great career as a teaching and research institution. Here, as Dr. Howard Kelly thinks, he came into contact with the methods of modern scientific research and laid the foundation for his future distinction. It should be remembered, too, that medicine itself was at the dawn of a new and revolutionary era and about to undergo greater development than in any other one hundred

year period in the progress of that great composite science.

It is no purpose of this brief appreciation to recite in detail Reed's various posts and assignments. In 1893, he was ordered to duty in the Surgeon General's office, in Washington, and assigned to the Curatorship of the Army Medical Museum and the professorship of bacteriology and clinical microscopy in the newly organized United States Army Medical School, the appointment carrying with it promotion to full surgeon with the rank of Major.

During the brief period between 1892 and 1902, Reed published twenty-one important papers on various medical subjects, including erysipelas, cholera, pneumonia, malaria and typhoid. During the Spanish-American War he served as Chairman of a Committee to study the causation and modes of propagation of typhoid fever, then prevalent among our troops in Cuba. On the completion of this investigation in 1899, he returned to Washington. In view of his later work on yellow fever, it is of interest to note that this investigation on typhoid fever disclosed much evidence tending to incriminate the common fly as a carrier of the typhoid infection.

This marks the end of Reed's period of preparation. He was now ready for his real work. Early in 1900, yellow fever appeared among the American troops stationed at Havana. The disease spread rapidly during the summer. In spite of the fact that Major Gorgas had made of Havana one of the most sanitary cities in the world, yellow fever struck with unprecedented severity. Reed was appointed Chairman of a Commission to investigate the cause of yellow fever. His associates were Dr. James Carroll, a bacteriologist, Dr. Jesse W. Lazear, an entomologist as well as bacteriologist, and Dr. Aristides Agramonte, a pathologist.

The Reed Commission, after a year's work, discovered the mode of transmission of yellow fever. This knowledge supplied the necessary information for the control of this pestilential disease. The organism of yellow fever is not yet known. But search for this agent is being made on the basis of Reed's fundamental experiments and results. The yellow fever organism, or virus, will undoubtedly be found, and a means will then be at hand for the treatment of yellow fever with therapeutic sera, if perchance control should be lost local-

ly through persistence somewhere of unknown foci of infection.

Aside from the immediate value in checking yellow fever in Cuba, Reed's experiments had enormous indirect effects. They made possible the building of the Panama Canal; they saved millions of dollars by showing the futility of the previously employed destructive means of burning "infected" property; they meant safety against the peril of yellow fever to millions in Central and South America. In spite of the findings of the Reed Commission, these resulting benefits would have been impossible but for the simplicity, accuracy, and completeness of Reed's work. Had the experiments been less simple and precise, the lay and scientific world would not so quickly and almost unanimously have become convinced of the truth of the results.

Measured by the criteria of scientific finality, direct human benefit and remote economic effects, the work of Walter Reed on yellow fever stands out as one of the great medical discoveries of all time. There is inspiration for the younger generation of medical graduates in the fact that the long period of routine, apparently unproductive service in Walter Reed's life could be made to contribute the necessary preparation for an epochal scientific discovery. Speaking of Walter Reed's eighteen years of service as post surgeon, Major J. R. Kean discloses the advantages which a strong will and a trained mind could force from it: "To lesser minds the limitations of such a life must have been narrowing, but for the eager industry and professional devotion of a Reed, they made the roots strike deep; and when we are surprised at the rapid growth and splendid fruit of his career as a scientist, we must remember that in the post surgeon's unmarked life, the seed was germinated and the roots firmly set . . . During the long apprenticeship he acquired, too, that perfect familiarity with the conditions and limitations of army life, which, combined with his scientific knowledge and sound judgment, made him the best sanitary inspector in the army and the court of last resort on all sanitary questions." This experience produced, moreover, a certain mental attitude so essential for his future work. It left him, as Dr. McCaw has emphasized, "with not too much reverence for accepted teachings and too little experience in grappling with difficulties unassisted."

To appreciate fully Reed's service in the

control of yellow fever, we need to form some idea of its previous ravages. Since time immemorial, yellow fever has been a perennial spectre of almost world-wide visitation. It spread unchecked until frost set a bar. The mortality was always high, ranging from 15 to 85 per cent in different countries. No known treatment had apparently the slightest effect. Almost every means of control was tried, from the inoculation with rattlesnake poison to the wholesale burning of houses in which yellow fever patients had died.

The earliest authentic record of yellow fever is of an epidemic in Central America in 1596. In 1668 it visited New York for the first time. Subsequently epidemics occurred in Boston, in 1691 and again in 1693; Philadelphia and Charleston, S. C., were stricken in 1699. Between 1700 and 1800, yellow fever appeared, according to Keating, thirty-five times. It ranged from Florida to Massachusetts. The worst of these epidemics occurred in Philadelphia in 1793, when the death rate was one in ten of the population. New Orleans was stricken in 1853; there were 29,020 cases with 8,101 deaths. It has been estimated that one year of yellow fever cost the state of Louisiana alone 4,056 lives and \$15,000,000.00. In 1855, yellow fever appeared in Norfolk; one out of three of those remaining in the city died. The epidemic of Memphis in 1878 is one of the worst on record; there were over 17,000 cases, with a mortality of one in 3.3. This same year the entire south was ravaged by this scourge, which reached as far north as Virginia. There were over 500,000 cases of yellow fever in the United States between 1793 and 1900. Keating estimates that the epidemic of 1878 cost no less than \$100,000,000.00. People in general accepted yellow fever as a visitation of God, the scientific world busied itself largely with fruitless speculations, and the entire subject was enveloped with uncertainty and gloom.

About 1878, the foremost scientific opinion rested on the idea of "fomites", a term employed to designate infected bedding, clothing, or furniture, through which the disease was thought to spread. Knowledge of yellow fever remained practically stationary for twenty years until the work of the Reed Commission.

It is only just to emphasize the fact that about this time the role of insects as carriers of disease germs was receiving much attention in medical publications. Major Ronald Ross,

of the British Army, and the Italian Giovanni Grassi, had succeeded about 1900 in demonstrating that a mosquito of the genus *Anopheles* was the host carrier of the malarial parasite. The earlier literature on the infectious or contagious diseases contained references to the supposed transmission by flies or other insects. Thus cholera, leprosy, the plague, typhoid fever, and tuberculosis had been associated by early writers with insect carriers, acting either as intermediate hosts or as objects to which the infected material was attached and so spread from place to place. Reed himself had written on the transmission of typhoid fever by flies. More to the immediate point was the insistence through a period of twenty years on the part of Dr. Carlos J. Finlay, of Havana, President of the Superior Board of Health of Cuba, that yellow fever was transmitted by a mosquito. He even implicated a certain species, *Stegomyia fasciata*, out of a possible 800 species of mosquitoes. But he was unable to produce the evidence which satisfied the scientific mind and warranted procedures on the basis of his claim.

On June 25, 1900, the Yellow Fever Commission arrived in Cuba and began at once to study "questions relating to the cause and prevention of yellow fever" at Quemados, a suburb of Havana. They directed their first attention to the discovery of a possible germ of yellow fever, with the hope of producing thereby curative sera. Eighteen cases from the Las Animas Hospital in Havana, some of them very severe, were most carefully investigated. Thorough and detailed autopsies were performed on four of them who died. Nothing in the nature of a germ could be discovered. This line of investigation was abandoned as without promise. The only alternative was now to begin search for the carrier of a presumably submicroscopic specific organism.

The Commission took time to consider certain queer things about the spread of yellow fever. Dr. Reed recalled certain facts in the reports of Surgeon Henry R. Carter, (a graduate in engineering of the University of Virginia), of the United States Marine Hospital Service, on the yellow fever epidemic of 1898 in Mississippi. Dr. Carter had noted that "The period from the first (infectious) case to the first group of cases infected is generally two to three weeks". These observations were confirmed by the Commission. They suggested

an incubation period, and seemed to indicate the presence of an intermediate insect host, which having taken the germ into its body was able after a certain interval to reconvey the infectious agent to other individuals. The Commission found the interval to be from nine to sixteen days. Dr. Reed was also much impressed by the fact that nurses and orderlies in Las Animas Hospital, though forced often to handle soiled materials (fomites) did not come down with yellow fever. This again suggested some insect carrier, acting as an incubating nidus and re-infecting agent, virulent only within certain sharply limited time intervals.

The Commission then went to call on Dr. Finlay. He generously expounded his theory of mosquito transmission of yellow fever, and put all of his data before them. He even gave them eggs of the mosquito he incriminated, *Stegomyia fasciata*. Dr. Reed took the eggs and gave them to Dr. Lazear with the request that he develop them into mosquitoes and use them for experiments. But animal experimentation was in this case impossible, since only humans take yellow fever. Permission was received from Governor-General Leonard Wood to conduct human experiments. The Commission decided that they must be among the first to take the risk. After carefully explaining the dangers involved, Dr. Lazear secured seven volunteers. He took the female mosquitoes raised from the eggs supplied by Dr. Finlay to Las Animas Hospital and allowed them to take their fill of blood from yellow fever patients. He then allowed the presumably infected mosquitoes to bite himself and the seven volunteers. Not one got yellow fever. Dr. Lazear was discouraged. But Dr. Carroll reminded him that Dr. Reed, who had been suddenly called to Washington, had left orders to "try mosquitoes".

So on August 27th, Dr. Carroll permitted himself to be bitten by one of Dr. Lazear's infected mosquitoes, one that had sucked the blood of four individuals, two with very severe cases, twelve, six, four and two days previously. Dr. Carroll achieved the distinction of being the first case of experimental inoculation with yellow fever through the bite of an infected mosquito. He was stricken with yellow fever on August 31st. Dr. Carroll recovered, and was henceforth, like Dr. Agramonte, immune to further attacks of yellow fever, a circumstance which added consider-

ably to the future value of these two men as members of the Commission.

The experiment on Dr. Carroll revealed a most important fact, namely, a minimum incubation period of approximately twelve days. This fact explains Dr. Finlay's failure through a period of twenty years to produce yellow fever experimentally by the bite of his mosquitoes. Another important fact, discovered later, was that in order to infect the mosquito the patient must be bitten during the first three to five days of the disease. During the course of their earlier experiments, Dr. Lazear was accidentally bitten by an infected mosquito in Las Animas Hospital. He died of yellow fever on September 25, 1900.

This was the state of affairs when Dr. Reed returned in October. Dr. Carroll and a volunteer "X. Y." had been successfully inoculated with yellow fever through the bite of a mosquito; and one member of the Commission was dead through accidental, though also voluntary, inoculation.

Speaking before the Public Health Association in Indianapolis at the end of October, 1900, Dr. Reed now felt himself justified in stating that "the mosquito acts as the intermediate host for the parasite of yellow fever."

Reed returned to Cuba early in November and preparations were now made for the final experiments which were to be so thorough that not the least doubt could ever attach to them. Camp Lazear was established, a mile out in the country beyond Quemados. Seven hospitals tents were erected and two special small wooden houses. In the tents two American soldiers, Privates Kissinger and Moran, of Ohio, and five "Spanish immigrants" nursed their experimental attacks of yellow fever received through the bite of a female *Stegomyia*. They had freely volunteered as objects of experimentation, and our soldiers gave further evidence of their fine and unselfish purpose by a refusal of the compensation of \$250.00 apiece provided by the Government. Only one case died, one of the immigrants. In the two wooden houses was tested by the aid of volunteer soldiers the possibility of infection through clothing and bedding (fomites). One of these volunteers was Dr. R. P. Cook, a medical graduate of the University of Virginia in the class of 1897, recently sanitary officer of Accomac and Northampton counties, but now with the Rockbridge County Health Department, at Lexington, Va. These experiments

definitely disproved any other mode of natural infection except through the medium of a mosquito. All of these later experiments were so thorough and well controlled that not the least suspicion has ever been entertained regarding their finality. "Reed's discovery of the mode of propagation of yellow fever is worth more than the cost of the Spanish War, including lives lost and money expended", declared Major Kean in a burst of enthusiasm.

Further experiments showed that yellow fever could be transmitted by direct injection of blood from a yellow fever patient during the first few days of the attack. Dr. Reed sums up this work with the statement that "it confirms what the mosquito inoculation had already shown, viz., that this parasite is present in the general circulation; second, that passage through the body of the mosquito, although this would seem to be nature's method, is not absolutely necessary in the life history of this micro-organism; and third, that the period of incubation of the disease, when thus produced, corresponds fairly closely to that occasioned by the mosquito's bite". This work failed to reveal on bacterial culture of infective blood any sort of bacterium, and thus disproved the claim of Sanarelli that bacillus icteroides is the specific agent of yellow fever.

Dr. Reed left Cuba in February 1901 and returned to his work in Washington. He now devoted most of his time to his teaching duties in the Army Medical School and in the Columbian University. He had the essential qualities of a successful teacher. He had mastered bacteriology and pathology, and he presented the subject in didactic lectures in an orderly, authoritative, and inspiring manner. Notable expressions of scientific honor and respect poured in upon him. In 1902, Harvard University conferred on him the honorary degree of M. A., and shortly afterwards, the University of Michigan the degree of LL.D. And then suddenly, in the prime of life, with his honors fresh upon him and a great career before him, he died on November 22, 1902, of appendicitis, at the age of fifty-one.

In estimating the value of the work of Walter Reed and the Yellow Fever Commission, two other great names must always be held in gratitude and honor—Dr. Carlos J. Finlay, of Havana, Cuba, and Major William Crawford Gorgas. Dr. Finlay's peculiar services have been evaluated above. Finlay furnished the working hypothesis which Reed

tested and proved correct. Gorgas built upon the work of Reed, and in so doing made possible the success of our military occupation of Cuba after the Spanish-American War. Gorgas, as attache to the Governor-General Leonard Wood, changed Havana from one of the worst pest-holes to one of the cleanest and healthiest cities of the world. Subsequently he did as much for the Isthmus of Panama, and through control of malaria and yellow fever contributed the essential elements for the successful building of the Panama Canal. The French attempt made under de Lesseps, in 1880, failed chiefly through the ravages of these two diseases. Gorgas, building upon the foundation reared by Reed, drove yellow fever from Cuba and Panama, and so freed the United States from further danger from these age-long foci of yellow fever infection.

The knowledge of Reed's discovery and the practical methods devised by Gorgas for the application of this knowledge, have spread over Central and South America, with the result that these countries are now practically free of the blight of yellow fever. At the close of the World War, during which he served as head of the Medical Corps, Gorgas, under the auspices of the International Health Board, directed a campaign against yellow fever in Guayaquil, Ecuador, one of the most formidable strongholds for centuries. Within six months the city was free of the disease. This accomplished, Dr. Gorgas turned his attention to what was considered yellow fever's last citadel, the Belgian Congo. Dr. Gorgas suffered a stroke of paralysis in London, while making preparation for this last fight, and he died a few weeks later. The work in the Belgian Congo has been continued by others and the results warrant the enthusiastic statement of de Kruif, "that in 1926 there is hardly enough of the poison of yellow fever left in the world to put on the points of six pins, in a few years there may not be a single speck of that virus left on earth,—it will be as completely extinct as the dinosaurs,—unless there is a catch in the fine gruesome experiments of Reed and his Spanish immigrants and American soldiers".

There is glory enough for all in this strange and thrilling battle:—Finlay, Reed, Gorgas, Carroll, Lazear and the heroic soldiers of the United States. And yet it is true that it was Reed's scientific skill in devising and carrying out inflexible scientific investigations that gave

the proof regarding the mode of transmission of yellow fever. This incontrovertible knowledge was the vital matter, and this was Reed's brilliant contribution.

Mr. Mark Sullivan, in his remarkable book, "The Turn of the Century," emphasizes a striking aspect of the eradication of yellow fever: "the enrichment that came of relief from anxiety, the intellectual and spiritual release, the more abundant flowering of man's powers that followed security from the tyranny of fear . . . And it may reasonably be contended that Walter Reed and William Crawford Gorgas brought to men freedom in a more happy sense and in a larger measure than any military or political leader of modern times." Dr. Howard Kelly eloquently declares that the inspiration of Reed's life lies in the fact, "though a man of war, he ravaged no distant lands, destroyed no tens of thousands to make his reputation, but by quiet methods, when there was no strife, saved countless lives and swept away a hideous plague, which from time immemorial had periodically visited our shores, devastated our fair land, and too often snatched from the years of peace and plenty all their blessings."

In ancestry, education, and training, Walter Reed is American to the bone. His work ranks among the greatest scientific discoveries in the history of medicine. The beneficent effects of his discovery of the mode of transmission of yellow fever bless the wide world. The best type of warm hearted, keen minded scientists live in his personality. The facts of his life glow with inspiration to medical students touched with ambition to serve mankind. Here is a real hero, endowed with a fanaticism for veracity and a purpose that no obstacle could daunt, emerging from one of the tensest battlefields of man's perpetual war against human misery and death.

The University of Virginia was established in 1819. In the one hundred and eight years of its existence, an army of nearly thirty thousand men have passed through its walls. In this host appear presidents, governors, bishops, physicians, warriors, teachers, men of science, poets, industrial leaders, and engineers, who have contributed their share to the betterment of society. It is no immoderate appraisal to declare that no one of them has made mankind his debtor in so vast and precise a degree as Walter Reed, the Army Surgeon.

Can the great profession of medicine honor itself more nobly and enduringly than by erecting a memorial which shall perpetuate his example and his fame to other ages in the great University which first quickened his pure ambition and in the sincere old Commonwealth which gave him birth and nourished his youth?

ACUTE UPPER RESPIRATORY INFECTIONS OF CHILDHOOD.*

By ROGER H. DENNETT, M. D., New York, N. Y.
From the Pediatric Department of the New York Post-Graduate Medical School and Hospital.

Certain infections of the upper respiratory tract in children have not been emphasized sufficiently in the literature, and since they are frequently seen by the clinician it would seem worth while to discuss them. I refer to those cases that run a prolonged course with high, usually remittent fever, in which through their entire course no focal symptoms are evident. We have commonly called this group of cases grippé or influenza or bronchitis, but perhaps the very fact that they have no definite name has made them confusing to the general practitioner as well as to the pediatricist. As a matter of fact, no definite micro-organism has ever been found in any large enough series of cases to convince us that any one micro-organism is responsible for this clinical entity. Some years ago Holt described a series of cases in which the influenza bacillus was isolated, but this is only possible in a small majority of upper respiratory infections. In the face of a definite influenza epidemic, such cases are extremely common and the physician makes the diagnosis and is satisfied with it, but with endemic cases which seem to be with us every year throughout the winter months we are less satisfied when we term them influenza.

To describe a typical case briefly, W. L., a girl six years of age, was taken suddenly ill with a temperature of 103. She had a very slight almost negligible cough, her throat was slightly reddened, the physical examination was negative, including ears, sinuses, heart, lungs, abdomen, and urine. The next morning the temperature was down to 100 but that night rose to 106. When the temperature was high she looked rather ill; when the temperature was low she appeared happy and one would hardly imagine that she was ill. This condition of affairs continued for four weeks,

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the remission becoming even more extreme and variation of 10 degrees in temperature often being observed in one day, striking 106 at the highest point and 96 at the lowest. The white count showed practically no leucocytosis, 14,000 white cells being the highest; the Widal was negative throughout, plasmodia were never found in the blood and daily examination of the urine revealed no pus or bacteria. Blood cultures were taken at intervals and found negative. There was considerable anaemia and, since such a prolonged infection is apt to drain the red blood cells and the hemoglobin, a secondary anaemia is a frequent accompaniment. Complete recovery took place and the child has been well ever since.

If this were an isolated case in one's experience, it would be extremely puzzling since there was no epidemic of influenza at the time. On the other hand, each year throughout the winter months we see many such cases, some of them of less duration, perhaps a week or ten days; others without such extremes in temperature, but all with negative physical and laboratory findings throughout the course of the infection.

Certain of these upper respiratory infections seem to focalize, and there the average physician seems to be more at home in making a diagnosis. Occasionally, and it is always well to forewarn the family of this contingency, true lobar pneumonia will develop. In such an instance, it may have been possible that the pneumococcus has been responsible for the entire infection and that there may have been an area of consolidation somewhere in the lungs from the beginning. As a matter of fact, I would warn against making a diagnosis of upper respiratory infection pure and simple, unless the lungs are X-rayed from time to time. There is no question that many cases of true pneumonia go through their entire course without any physical signs and that occasionally the diagnosis of pneumonia is only made by the X-ray, since such has been found the case in a fairly large series of hospital children where X-rays are taken routinely and where the diagnosis is often made by the X-ray plate. I remember some years ago when X-rays of the lungs were new and proving to be of great aid, one of my colleagues, an X-ray man of note, said to me, "I never did believe that the clinician could discover all of his pneumonia with a stethoscope. A very small area of consolidation covered by a large area

of normal lung tissue cannot always be made out by auscultation and percussion." We now know that he was right.

Another complicating factor of these upper respiratory infections which does not seem to be emphasized in the literature in connection with prolonged fever, is acute swelling of the lymph nodes, both in the neck and mediastinum, which do not go on to suppuration. Just such a case as I have described may be seen commonly, accompanied by acutely swollen glands in the neck that are tender but do not become red or fluctuating at any time during the course of the disease. The significant fact is that these glands are only a part of the upper respiratory infection and, although it has been given the name of acute glandular fever and there is something definite to see and feel, to my mind it is still only one and the same infection with a visible manifestation. Such cases may go on to suppuration and require incision and drainage, and in such instances the streptococcus is usually found to be the invading organism.

One case is recalled which continued a high remitting fever for two months before an enlargement of the glands appeared in the neck, and finally when suppuration did appear it seemed to be an evidence of resistance on the part of the patient, for recovery gradually took place from that time. Mediastinal lymph nodes may be discovered only by X-ray, and they are not as uncommon as might appear, when routine X-rays of the chest are taken. They sometimes go on to abscess formation and an acute suppurative mediastinitis is not as rare as it is thought to be.

Acute otitis media is the commonest complication of these upper respiratory infections in children. The chief object of this paper is to try to convince the otologist that ordinarily acute otitis is only a part of an upper respiratory infection. Hundreds, and it might be said thousands, of mastoid operations in this country would be avoided if this view of the situation were taken. The otologist is not to blame, for it is the duty of the pediatrician to show him that this is true. In talking with a fairly large number of pediatricians it has been found that this viewpoint is quite commonly shared by them. The attitude that the otologist has taken has been, that, given a case of acute otitis media with bulging drum, incision and free drainage are indicated, when the temperature should subside within a day

or two, and, after discharge of pus from the canal for a week or ten days, complete recovery should take place. On the other hand, where the temperature does not subside with free drainage, the otologist suspects mastoid involvement, and an operation, sometimes as an emergency, but latterly with less haste, is urged. It has been said that a mastoid operation is never an emergency and I am inclined to coincide with this view. It is a fact that in most, if not all cases of otitis media of any considerable duration, there is pus in the mastoid cells, but the surgeon should not consider that the operation was necessary simply because he found pus when the mastoid was opened. Where no necrosis of the bone is found, it may be concluded that the operation was unnecessary and that probably the pus would have drained equally well through the middle ear and recovery taken place with less distressing circumstances and in less time through middle ear drainage.

A case is recalled in which an upper respiratory infection with an accompanying otitis media was seen with the otologist. Both drums were promptly incised, pus drained freely through the canals but the temperature did not subside. After a few days the otologist insisted upon opening both mastoids, which he did after some opposition on my part. In the meantime another member of the family about a year younger, started with the same infection. The drums were promptly incised and continued in exactly the same course. Operation was immediately advised by the otologist but I objected and in a very friendly spirit the otologist said, "All right, you can call this your case and I will take care of mine and see which gets well first". It can only be said that the member that was operated was still having daily dressings, was pale, anaemic, emaciated and sick at the end of two months, whereas the unoperated case was healed in two weeks, was out playing in three, and at the end of the two month period was a robust, healthy, and vigorous object lesson to the otologist.

The otologist's attitude can well be explained. His is the responsibility if the infection extends beyond the mastoid to sinus thrombosis or septic meningitis, but he should not forget that a continued high remittent fever may be due to an upper respiratory infection and that there must be very definite symptoms of sinus thrombosis beside fever.

Last spring I made a statement before my students that although I had incised a great many ear drums throughout the winter, sometimes as many as four or five a day, I had not had a single mastoid among them, and I had followed every single case in private practice through its entire course. The very next day one of the children with otitis media which had been under my treatment, was seen with extreme tenderness and edema over the mastoid cells coming on three weeks after the original incision of the ear drum. This child was promptly operated and went uninterruptedly to recovery. Although I usually see more mastoids than this in the course of a year, this was the only one seen during the past winter season. The entire treatment of otitis consists in incising drums promptly and thoroughly once, not repeating the incision unless there is improper drainage, irrigating the canal every two hours with a mild sterile antiseptic solution such as one teaspoon of boric acid to the quart of water, one quart to each ear, with a Lucae's ear tip attached to a fountain syringe, all of which must be sterilized each time, irrigating every two hours in the daytime, four hours through the night, avoiding blocking up the canal with cotton or any other dressing or irritating the canal with strong medicants of any kind. The more thoroughly and carefully and conscientiously the irrigations are done, the sooner will recovery take place. It goes without saying with prolonged or recurring otitis one should have all adenoids cleaned out the nasal pharynx, and diseased tonsils removed. Where there is much nasal obstruction, removal of the adenoids will often clear up an oral discharge at once; sometimes removal of the tonsils is advised at the same time, but it seems better judgment in the light of our present knowledge to remove the tonsils later and not during the course of acute infection.

But what are the indications for a mastoid operation, for such there are? In the first place, pain, continued pain, after the drum has been incised and is draining freely, especially when accompanied by fever. In the second place, deafness over a prolonged period and seemingly getting worse if accompanied by fever and pain. In the third place, destruction of bone when seen in the X-ray plate. In the fourth place, sagging of the posterior wall, if it continues and if there are other signs as well. Finally, redness, swelling, ten-

derness, and edema over the mastoid processes often with pushing forward of the auricle. Tenderness alone over the mastoid is not an indication for operating.

In conclusion, apologies are offered to the otologist. He has done his duty conscientiously as he sees it. The busy pediatrician perhaps sees more middle ears in the course of his winter's work than the otologist. He certainly sees the upper respiratory infections that the otologist does not. A drive is on to prevent unnecessary mastoid operations, and pediatricians feel sure that the otologist is anxious to co-operate in this drive. The day is over when a prolonged fever with a running ear is in itself an indication for a mastoid operation, nor is an aural discharge lasting two or even three weeks an indication, nor is tenderness alone with fever and discharge an indication.

125 East Thirty-ninth Street.

DISCUSSION

DR. ST. GEORGE T. GRINNAN, *Richmond*:—I think this is one of the most interesting papers I have heard in a long time. I have two young boys. After long argument both were operated on for mastoiditis. What Dr. Dennett described is actually true. My wife objected very much to the operation, because she was raised at the University of Virginia, and her ears ran ten years, and she never had to be operated upon.

Every pediatrician is asked, all during the winter, the value of vaccines, with which I have not been successful. I should like to ask Dr. Dennett his opinion with regard to the cold and influenza and other stock vaccines.

DR. H. S. HEDGES, *Charlottesville*:—If Dr. Grinnan's wife had had an operation, her ears would not have run for ten years.

DR. W. B. McILWAINE, *Petersburg*:—I want to say that the otologists in Virginia evidently differ a great deal from the otologists in New York City, for every year I have to urge my consultants to operate on mastoids. I very often diagnose a mastoid before they do and then have to urge operation.

Of course, a paper like Dr. Dennett's is of very great value, and a great many lessons can be learned from it; but it is impossible to give a picture of upper respiratory infections in a short paper. Certainly the otologists whom I see in Virginia are not prone to operate quickly and are much more apt to take the judgment of the pediatricist. So far as my experience goes, I generally have to urge the operation and not fight it off as Dr. Dennett seems to have to do.

DR. ———:—I rise to ask Dr. Dennett what are the diagnostic symptoms that indicate puncturing of the drum and his technic for doing it.

DR. C. S. DODD, *Petersburg*:—I should like to ask the doctor what otologist he ever heard say that pus in the mastoid is an indication for operating? He does not see the pus until he goes in there. So we do not make an argument along that line, nor do we hold that pain alone is an indication for operation. We do as the general surgeon does in a case of appendicitis,—put all the symptoms together and decide what course to follow. I want to tell you that if you let the ear discharge indefinitely,

you are going to get mastoid cases and brain abscess and what not, and you may have the pleasure of seeing the undertaker get your patient, whether the patient be a child or an adult, if you just let it go long enough. I do not know just how eager the men in New York City are to operate, but we do realize that operating for mastoiditis is a rather serious business. However, waiting for the pain, tenderness and other symptoms to disappear is also serious.

DR. J. H. HIDE, *Pungoteague*:—Sometime ago I had a patient brought to me suffering with acute otitis, and I decided to make an incision and open the eardrum and did so. There was a great discharge of pus very soon. The temperature soon fell from 103 down to 99, and then became about normal. That lasted for several days. I used boric acid douches, as Dr. Dennett has just described to us. In about a week that child developed fever again, and there was a good deal of tenderness over the mastoid. I began to get a little uneasy and sent the case off to a specialist for a mastoid operation. He said the condition was one of the worst he had ever seen which recovered, but finally this child did recover. I asked myself again and again if I had done right in using hot douches and syringing out the ear, as I recalled that Dr. Ballenger, of Chicago, is opposed to that. I was a little worried to think that I had gone in opposition to so eminent a man that was opposed to using those douches, on account of the possibility of getting infection inside; but I find now that I have an eminent man on my side, after all, and it makes me more comfortable. Thank you, doctor!

DR. W. P. McDOWELL, *Norfolk*:—I have listened with a great deal of interest to Dr. Dennett's timely paper and to the discussion which has followed. I do not rise with a desire to further prolong the discussion, but I should like to ask a question. Say we have an acute otitis media, paracentesis has been done, and the X-ray shows definite mastoid involvement. What is to be our criterion as to whether this case will get well if left alone or that it is one in which we should resort to mastoid operation? This is a point on which we need a clearer idea.

DR. ROGER H. DENNETT, *New York City*, (closing the discussion):—I knew this would be a very unpopular subject, and I almost wrote Dr. Harris that I should like to change my topic, after I had written the paper. It is an unpopular subject with us in New York. I do not know anything about your otologists down here, so that proves I did not come down to insult them. But ours vary so tremendously that that is one excuse I, a mere pediatrician, a baby doctor, have for writing such a paper. The otologists vary so tremendously that we do not know who is right. Some use douches, and some do not; some say operate, and some say wait. But I do know that each year I have fewer and fewer mastoids, and my cases are among a fairly intelligent class of people (private cases). Now, I do not know anything about adults' mastoids. I am not even going to answer that question about how to incise an eardrum. Nobody ever taught me; I learned it from the textbooks. My whole course at the Harvard Medical School, twenty-five years ago, consisted in sitting up on the top seat in the amphitheater and watching Clarence Blake look through an auroscope. That was my entire training in school, but my training has been ever since then, day after day, year after year, seeing these children with otitis. We can not call the otologist every time to open an eardrum. We examine the eardrum as routinely as we do the throat or the chest in a child that has a fever. There-

fore, I must say I think the pediatricist has, with this enormous experience, an opening. I hope nobody gathered that I think a mastoid operation should never be done. I think I gave the indications as I see them. Nor do I want to give the impression that I have ever had a year since I began practicing with only one mastoid. Perhaps it was a milder infection last year; perhaps it was good luck. Every year certainly we do have four or five mastoids which I do turn over to the otologist and in which I welcome his surgical work.

As to how long to wait, I am not going to set a definite period of time when the mastoid should be opened up. It is a matter of keen judgment—and the keenest judgment. I think when we have not had this experience, we have to rely upon the otologist's judgment in the matter, but their judgment varies so much that it is very difficult for me to allow them to decide, without more than one opinion, when the question is in doubt. Perhaps our otologists are different from yours. I see it; I prevent mastoids; I do it every winter. I see it in consultation perhaps with an out-of-town otologist. I see they want to open the mastoid when a fever keeps up for perhaps four or five days after the ear has been incised; they want to do it for nothing except the continued discharge from the ear. Perhaps you do not see that, but I do, and that is the sort of thing to which I believe it is well worth while to call attention.

THYROID DEFICIENCY.*

By JAMES H. SMITH, M. D., Richmond, Va.
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The outspoken forms of thyroid deficiency, cretinism, myxedema and cachexia strumipriva, were clearly described before the days of basal metabolism tests. On the other hand, a wide and increasing range of possibilities in treatment has been opened up around the central fact that very definite thyroid lack may exist independent of the classical pictures of extreme grades of hypothyroidism. This newer body of observations has not been classified nor by any means completed, and yet, obviously, it is here that our attention must be focused rather than on the familiar gross clinical states.

Internists, general practitioners and all diagnosticians are without doubt ready to welcome any positive idea that will somewhat reduce the number of so-called neurasthenics. Doubly welcome is such a concept if it carries with it a simple and efficient remedy. Many conservative clinicians are proving to their own satisfaction that in thyroid deficiency there is some redemption from the snare of neurasthenia. The more one watches out for it the more common it seems to be. Indeed, I have heard there exists in other clinics the feeling we have in our work, that we may be finding too

many. More time must elapse before the real importance of mild sub-thyroid states can be estimated. Basal metabolism is beyond question a fundamental sort of thing in the physiology of health and disease, but so also are body height and weight. I am sure many of us lack patience with the notion that an individual's weight must bear some exact relation to his height in order to enjoy good health, and we should not hastily attribute illness to an individual if casually we should find his metabolic rate somewhat low or high. By "casually," I mean, for example, in a series of tests run on supposedly normal subjects. If, on the other hand, the patient comes complaining that he is sick, an abnormal metabolic rate is to be taken into account with any other available diagnostic evidence. The purpose of what has been said is to anticipate a random quality and a tentative note that I am not going to be able to avoid.

It is practically, if not absolutely, true that the diagnosis of thyroid deficiency may be considered established if the metabolic rate is definitely low and the administration of thyroid substance proves definitely beneficial. Since we are not prepared to advocate routine determinations of the metabolism, two questions immediately present themselves:

What circumstances should lead to investigation of the metabolic rate?

What conditions other than thyroid deficiency cause an abnormally low basal metabolism?

The contrast between the classical conception of sub-thyroidism and the present understanding of some of the milder forms is seen in that, instead of sluggishness and mental inertia, there may be nervousness and irritability; the pulse rate may be increased rather than slow; the thyroid may be either appreciably atrophied, greatly hypertrophied, or apparently normal; the skin may be soft and pliable and the hair fine; and the patient may be underweight rather than overweight. Exception can hardly be taken to most of the atypical features ascribed in the recent literature to thyroid lack when those claims have been supported by metabolism studies. Nervousness is not an infrequent complaint in this type of case. An initial pulse rate of 124 was observed in one of our patients, and the following day a basal metabolic rate of minus 14 was obtained with a pulse of 74 to 80. But in the matter of low body weight it is possible not enough care has been used to distinguish

*Read before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

between the low metabolism of undernutrition and the low metabolism of hypothyroidism. I know of no conclusive proof that the thyroid is in any way responsible for the low heat output in experimental or pathological starvation, and it does not seem unreasonable to believe that the fire burns low as any other fire does when the supply of readily available fuel becomes low. Two cases in the service of Dr. Hunter McGuire will serve to illustrate the contrast. Both were seventeen year old girls with a previous average weight of about 130 pounds. Miss A. had suffered a loss of 49 pounds beginning as a voluntary reduction by dieting, which resulted in anorexia and progressive weight loss. The basal metabolic rate, which was minus 36, was brought to normal (minus 2) within two months, coincident with a gain of 34 pounds, under general treatment without thyroid. Miss M., on the contrary, had gained 15 pounds, presented clinical evidence of hypothyroidism, basal rate minus 32, and is responding to thyroid medication according to expectation.

Perhaps it is better to regard the question of undernutrition in hypothyroidism as unsettled, and, furthermore, not to conclude, as yet, that thyroid medication is contraindicated in undernourished individuals with low metabolic rates. As an activator of metabolism, it may set in motion physiological processes which will result in improved nutrition if adequate food is supplied for energy needs plus storage. However this may be, it would seem likely that differences in dosage would be needed as compared with thyroid poverty, and if this is the case differentiation is important.

To emphasize the value of metabolism determinations in thyroid disease I could cite cases in which a high rate was suspected and a subnormal reading obtained. To emphasize its limitations I would refer to a case of cachexia strumipriva quite dependent on thyroid medication, in whom we have not been able to get a reading below plus 25. In this case we do not consider the metabolism tests acceptable.

Two or three facts with reference to metabolic rate studies are worth emphasizing here even at the risk of repetition. Limits of normal should not be taken too literally. Especially on the plus side we should think in terms of ten rather than of one. The first accepted upper normal limit of plus 10 has

about given way to plus 15, and possibly the lower limit, instead of minus 10, might better be placed at minus 5, though nothing presented in this paper requires such a shift to support it. Another observation with which technicians are more familiar than clinicians is that a reading below normal is less likely to be erroneous and misleading than one above normal.

While speaking thus parenthetically, I would refer to special difficulties in estimating the metabolism of children. In addition to a frequent inability on their part to co-operate in methods of indirect calorimetry, there is no generally accepted standard of normal for children. After examination of the original published data of subjects selected as normal, chiefly those of Benedict and Talbot¹ and of DuBois,² I am inclined to think that the best standard in both sexes for the present is furnished in Benedict and Talbot's average for age unless the child is obviously both over-height and overweight, in which case the average for height should be used as the standard; and that in children at or approaching puberty DuBois' average for boys, twelve to fourteen, further subdivided so as to allow more exactly for fractions of years, is the most acceptable standard for boys, and the same figures less 7 per cent for girls.

Approaching more directly the inquiry as to when the possibility of a low metabolism should be investigated, the more characteristic special hints are slow pulse, coarse hair, heavy but non-pitting, dry skin, malnutrition of the nails, sensitiveness to the perception of cold, physical and mental inertia, overweight, and a full, pudgy facial expression. More generally I would say that, whenever we have not arrived at a satisfactory diagnosis in a patient showing vague constitutional symptoms, a basal metabolism study is made for purposes of elimination. It is this group with vague subjective symptoms but lacking any outspoken physical signs of thyroid deficiency, that has impressed us as important on grounds both of frequency and therapeutic possibilities. It is illustrated by the case of Miss L., aged 34, presenting the appearance of good health and negative physical examination, complaining of nervousness, general aching, the symptoms of a vasomotor rhinitis, sensitiveness to cold, and constipation. Basal pulse 78; B. M. R. minus 15. The patient felt well after six weeks' thyroid medication, when the B. M. R. was plus

11. The change in rate was not accompanied by loss in weight, and this failure of correlation between the two we find to be not at all exceptional.

We are further interested in the association of sub-thyroid states and certain other clinical findings which will be alluded to, though the case histories cannot be quoted here at length.

Nephritis, especially cardio-nephritis, leads to caution in thyroid therapy. However, in the case of a woman, aged 54, blood pressure 238/120, cardiac hypertrophy, chronic nephritis, B. M. R. minus 18, most satisfactory subjective and objective improvement followed thyroid therapy, the blood pressure declining to 160/90 and the B. M. R. increasing to plus 6. Nephrosis as described by Epstein, with its hypothyroid features, was not difficult to exclude. The usual cardio-nephritic regime was followed, but the results were better than usual.

In a few cases digestive symptoms unassociated with demonstrable organic lesion, characterized by constipation and either hyperacidity, normal gastric contents or achlorhydria, with low metabolic rates, have responded to treatment based on thyroid deficiency. Four cases of hypothyroidism showed achlorhydria without furnishing any data relating the two as cause and effect.

We have not followed closely the supposed relationship between the thyroid gland and sugar tolerance. There seems to be no frequent clinical connection between over-activity of the gland and diabetes mellitus, and if a high sugar tolerance was ever helpful in the recognition of low thyroid states, metabolic rate determinations have reduced its relative value.

On the other hand, Thacher and White's³ description of a characteristic cardiogram of myxedema, with a low T-wave in Lead II and general low potential, has been confirmed to the limited extent we have followed it, and would seem to be of genuine clinical significance.

Of the interrelation between ductless glands, so much has been said that there is a danger either of bewildered inaction or of shot-gun therapy. With regard to the thyroid in its relation to the pituitary, the ovaries and the adrenals, I am disposed to give pituitary with thyroid substance when the pituitary indications are clear, to omit attempts at ovarian or adrenal substitution therapy at least in the beginning of thyroid administration, and in

all cases with a low metabolism to keep the possibility of thyroid need in the foreground.

An interesting case of cachexia strumipriva with achlorhydria is mentioned here on account of skin lesions strikingly resembling pellagra. Prompt disappearance of the lesions, with extensive desquamation, occurred under thyroid administration along with dilute hydrochloric acid.

In contradistinction to the foregoing where the thyroid is believed to have a positive role, we have rarely found a low metabolic rate in frank cases of obesity without constitutional symptoms.

I turn now to a few scattered observations on therapy. When more information is available it will be of interest to discuss the permanence of thyroid deficiency and the conditions governing the period during which treatment is required. For the present better therapy will be practiced if physician and patient regard them as permanent unless or until proven otherwise.

There is a definite need for standardization of the various preparations on the basis of thyroxin content or physiological potency. For simplicity of administration and freedom from unpleasant by-effects, we regard the tablet form as preferable, but under prevailing conditions it is necessary that one familiarize himself with some reliable preparation, best measured in terms of the metabolic rate.

Since, as in other substitution therapy, it is important to have the co-operation of the patient, some conservatism is advisable in establishing the required individual dose, in order that the patient be not disconcerted through the production of a disagreeable, possibly dangerous, reaction from over-dosage. In order to avoid any probability of over-dosage while the patient is not under observation, it is our custom to introduce some routine break in therapy, and to suggest that, while it is not necessary to count one's own pulse, an unpredicted loss of weight or increased pulse rate, or the intervention of an acute illness, should lead to the omission of thyroid for the time being.

Before summarizing what has been said, I would emphasize the belief that, for some time to come, great discrimination will be required to distinguish whether a low metabolic rate and its implication as to the thyroid gland is the essential clue to the patient's ill health. The intriguing interest of the thyroid gland,

its measurable function and its specific therapy can easily lead the enthusiast to overlook some stubborn pathology elsewhere that will not be touched though the metabolic rate be brought to straddle the dividing line between plus and minus.

SUMMARY

1. There is a degree of the hypothyroidal state that is of clinical importance not only short of, but more or less in contrast to the clinical picture of gross forms of the condition.

2. The basal metabolic rate should be determined:

(a) If any suggestive signs or symptoms of hypothyroidism present, and

(b) Before arriving at a diagnosis of neurasthenia, psychasthenia, vagotonia, constitutional diatheses and like vague terms.

3. The established fact of a low metabolic rate does not establish hypothyroidism as the final diagnosis.

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FURTHER EXPERIENCE WITH IODINE IN GOITRE.*

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Two years ago I reported to this Society the results obtained in fifteen cases of exophthalmic goitre by the pre-operative administration of Lugol's solution of iodine as advised by Plummer¹ in June, 1923. The results were most encouraging. Since that report we have operated upon eighty-two patients for goitre. Seventeen of these were adenomata with normal function; thirty were adenomata with hyperthyroidism, and thirty-five were of the exophthalmic type. The exophthalmic cases all received iodine; twenty-nine of them for the first time. The usual dose was M. xv daily and the duration of pre-operative treatment averaged sixteen days. Only one case failed to improve.

Chart No. 1 shows an average decrease of 22 per cent in the metabolic rate, and ten beats per minute in the pulse rate. Ligation of the superior thyroid arteries was considered necessary in five cases. Three of these had received iodine for several weeks before coming under our observation, so had passed the period of greatest remission.

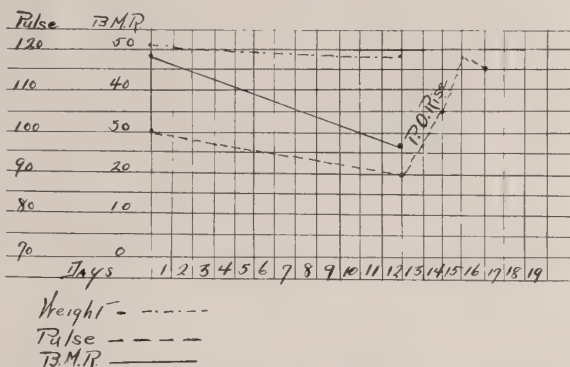


Chart 1.—This chart shows the average pulse, weight, and basal metabolic rate changes in twenty-nine cases of exophthalmic goitre treated with iodine.

Iodine was administered during the immediate post-operative period in all cases and a few were advised to take small doses for several months. There were some moderately severe post-operative reactions, only one of which was alarming. We had no operative deaths. One case which will be reported in detail died while under observation.

Within the past two years numerous reports of good results by this method of treatment have appeared in the literature. Pemberton² states that the number of ligations now as compared to the number before using iodine is in the ratio of 1:11. Also, according to him, acute post-operative thyroidism has been almost eliminated at the Mayo Clinic. It seems to be established that iodine is of great value as a therapeutic agent in the pre-operative management of exophthalmic goitre.

IODINE IN ADENOMATOUS GOITRE

Lahey³ and numerous others have observed simple adenomata become toxic after taking iodine. Frazier⁴ says "under no circumstances should iodine be given to a patient with an adenoma whether it be toxic or non-toxic, except when the patient is in a hospital where he is being prepared for operation." In the previous report I concluded that we were justified in using iodine in suspected toxic adenomata when exophthalmic goitre could not be excluded. We have treated seven patients

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

with toxic adenomata with Lugol's solution. In three the results were comparable to those obtained in exophthalmic goitre; in two others there was little change and in two the symptoms were accentuated. Graham⁵ states that his results are equally good in toxic adenomata and the exophthalmic type. He advances the view that adenomatous goitre with hyperthyroidism and exophthalmic goitre are different phases of the same disease. Decourcey⁶ has not found iodine of value in the pre-operative treatment of toxic adenomata, but has noted a marked decrease in the reaction since using it as a post-operative measure.

From our small group of cases it would seem wise to try iodine in all cases of adenomatous goitre with hyperthyroidism, but only as a pre-operative measure and under careful observation.

IODINE AS A CURATIVE AGENT

A few reports of encouraging results from the continued administration of small doses of Lugol's solution are to be found in the recent literature. Read⁷ found that, out of a series of twenty-five cases of exophthalmic goitre treated, eleven showed marked improvement, eight improved to a moderate degree, and six did not improve. The majority of writers report unsatisfactory results with such treatment. We have had an opportunity to follow six patients with exophthalmic goitre who were treated over periods of time ranging from six weeks to two years and in no case was there permanent improvement. I will refer to three of these cases in some detail.

CASE REPORTS

Case 1.—Mr. L. E., white, aged 19 years, was admitted to the University of Virginia hospital, May 7, 1921, with the typical symptoms and signs of exophthalmic goitre. Both superior thyroid arteries were ligated and he was advised to return in three months for thyroidectomy. He did not return until July 3, 1922, at which time a partial thyroidectomy was performed. On February 5, 1924, he returned with recurrence of symptoms and a basal metabolic rate of plus 41 per cent. Three applications of radium were given over the thyroid, but in April, two months later, he was still quite toxic, with a metabolic rate of plus 31 per cent. He was given Lugol's solution M. iij once daily, and two months later was improved; with a metabolic rate of plus 14

per cent. The iodine was continued for two weeks each month until July 7, 1926, when his metabolic rate, which had remained above normal, was plus 28 per cent; his pulse rate 110 per minute. Partial thyroidectomy was performed July 12; uneventful convalescence. Microscopic examination revealed relatively large acini, lined by cuboidal epithelium and filled with quite dense colloid.

Although this patient received iodine over a period of two years, there was little permanent improvement.

Case 2.—Mrs. G. W. A., white, aged 49 years, was admitted to the University of Virginia Hospital, March 31, 1926, with the characteristic symptoms and signs of exophthalmic goitre. The present illness was of three years' duration. In December, 1925, three months before entering the hospital, she began taking Lugol's solution M. xv daily. Her symptoms improved for a time but gradually returned. When first seen by us she was quite toxic, with a basal

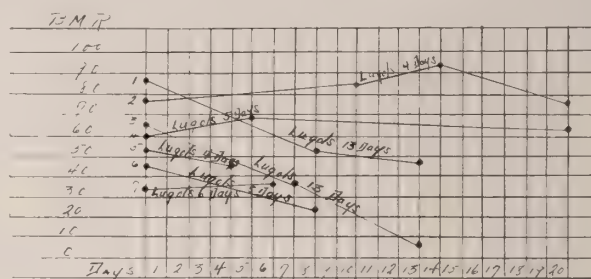


Chart II.—This chart shows the changes in basal metabolic rate in seven cases of adenoma with hyperthyroidism following the administration of Lugol's solution.

metabolic rate of plus 52 per cent and a basal pulse rate of 100. The iodine was discontinued and one week later the metabolic rate was plus 67 per cent but two weeks later dropped to plus 49 per cent. Both superior thyroid arteries were then ligated; followed by a moderately severe reaction. Seven weeks later her metabolic rate was plus 58 per cent but after taking Lugol's solution for three weeks, it dropped to plus 28 per cent, at which time subtotal thyroidectomy was performed.

This patient received iodine for three months with but temporary improvement. Had it been given as a pre-operative measure only, ligation would probably not have been necessary. This conclusion seems justifiable from the satisfactory response to Lugol's solution after a long period of discontinuance.

Case 3.—K. P., a colored female, aged 35 years, was admitted to the University of Virginia Hospital, April 29, 1925, complaining

of weakness and palpitation of the heart. She presented the characteristic picture of a severe exophthalmic goitre, with a basal metabolic rate of plus 75 per cent. During the first week of iodine-therapy, the metabolic rate dropped to plus 49 per cent. One week later there was no further improvement, so immediate operation was decided upon. Approximately three-fourths of the thyroid gland was removed, following which she had a severe reaction. Microscopic examination revealed marked epithelial hyperplasia. Two weeks after operation the metabolic rate was plus 10 per cent. Although this patient continued to take small doses of iodine, she returned in three months with a recurrence of toxic symptoms and a metabolic rate of plus 43 per cent. The iodine was discontinued with definite temporary improvement, but twelve days later she became suddenly worse. An attempt was made to give Lugol's solution both *per os* and by rectum, but neither was retained. We therefore gave M. xx by hypodermic injection, but without result, and she died a few hours later.

This patient developed an early and severe recurrence while taking iodine. The crisis was probably precipitated by its being discontinued.

PATHOLOGICAL OBSERVATIONS FOLLOWING IODINE THERAPY

Rienhoff,⁸ Cattell⁹ and others have shown that there is a marked change in the gross and microscopic appearance of the thyroid gland following the administration of iodine in exophthalmic goitre cases. The most noticeable changes are—an increase in the size, and decrease in the vascularity of the gland; an increase in the amount and the staining reaction of the colloid; and also a change in the epithelium from high columnar to the cuboidal type.

In our series of cases we have noted similar changes, and in only one have we seen the marked hyperplasia usually found in exophthalmic goitre.

DISCUSSION

The excellent results obtained by the pre-operative administration of Lugol's solution has aroused much interest in the general subject of iodine therapy in goitre. Undoubted harm may result by the indiscriminate use of iodine in cases of thyroid enlargement. Some of the dangers are—simple adenomata may be-

come toxic; toxic adenomata, which do not respond uniformly, may become more toxic; and even in exophthalmic goitre, by its prolonged use, multiple operations may be rendered necessary and the prognosis made more serious. If patients are to have surgical treatment, it is essential that the operator see them before iodine therapy is instituted, since his primary impression should influence his decision as to the type of operation to be performed.

As iodine seems to be of curative value in only a small percentage of those so treated, and since the results from surgery are satisfactory in about 75 per cent of cases, there seems to be little justification for its use except as a pre-operative measure.

CONCLUSIONS

1. Iodine is a valuable therapeutic agent when used in the pre-operative treatment of patients with exophthalmic goitre.

2. Certain patients with toxic adenomata are made better surgical risks by the proper use of iodine.

3. We do not seem to be justified in using iodine as a curative agent in either adenomata or exophthalmic goitre.

4. Only in case of emergency should iodine be administered to a patient with hyperthyroidism prior to careful study.

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THE DIAGNOSIS AND TREATMENT OF EXOPHTHALMIC GOITER.*

By W. C. CAUDILL, M. D., Pearisburg, Va.

We are now passing through perhaps the most interesting period in the entire history of goiter. It is true that during the past few years much has been done to clarify the subject of goiter, but, nevertheless, there still remains in the minds of many physicians a great deal of confusion in the diagnosis and management of this complex malady.

Believing that at present the crux of the goiter problem is revolving more largely around that of exophthalmic goiter, I have chosen this phase of the subject for my discussion.

Exophthalmic goiter has been described as a constitutional disease, apparently due to an excessive, probably an abnormal, secretion of an enlarged thyroid gland showing diffuse parenchymatous hypertrophy. It is characterized by a high basal metabolic rate with the resulting associated manifestations, with a peculiar nervous syndrome and usually exophthalmos, and with a tendency toward the gastro-intestinal crises of vomiting and diarrhea.

The exact part played by the thyroid gland, and whether there is an excess or deficiency of iodine secretion, is still a debatable question. A theory of the action of the thyroid gland is expressed by Blumgarten as follows: "The thyroid gland controls metabolism probably by the elaboration of thyroxin. Physiologically speaking, it therefore controls the speed of function, such as the speed of cerebral activity, the speed of carbohydrate metabolism, the speed of practically all somatic functions. Chemically it controls nitrogen metabolism. There is a good deal of evidence to show, and Rogers has demonstrated experimentally, that the thyroid gland is the great sensitizer of the autonomic nervous system. It is generally agreed that the autonomic nervous system is an important factor in determining visceral function, and since the thyroid is the great autonomic stimulant the speed of visceral function is to a great extent dependent on thyroid activity. The thyroid also controls the iodine concentration of the blood."

Another interesting view in regard to iodine secretion is given by Plummer. He states, "that intensive stimulation of unknown source, acting on the entire gland, drives it to the

point of producing an active agent, abnormal in quality as well as quantity, which in the tissues of the body causes all the phenomena of the disease. As the normal molecule of thyroxin, discovered in 1914 by Kendall, contains 65 per cent by weight of iodine, it was natural to speculate as to the possibility of an incompletely iodized molecule, and Plummer conceived the theory that the syndrome of exophthalmic goiter varies with the amount of a completely iodized molecule, and with the relative amount of the two molecules in the tissues. Iodine is therefore administered on the theory that it will completely iodize the molecule thyroxin."

Up until a comparatively short time ago the theory has been almost unanimously accepted that we were dealing with an excessive secretion of iodine in exophthalmic goiter. Mix states, however, "we must now admit that it is not due to an excess, but rather to a deficiency; else, how can we explain the relief that is obtained by giving iodine in the form of Lugol's solution to these patients? Years ago I noted, as many physicians have noted, that an occasional case of exophthalmic goiter alternated with myxedema. These cases used to be extremely hard to understand because apparently in earlier times they seemed to be alternations of excess of iodine metabolism with an insufficiency of iodine metabolism. From what we know at the present time it is easier to explain how the two conditions may be more or less coexisting simultaneously or consecutively. Myxedema is really a hypothyroidism; exophthalmic goiter is dysthyroidism with an iodine deficiency; both being iodine deficiency diseases, it is easy to explain how they may at times be associated in the same individual." To me, this theory seems to be the most rational. But it only serves to emphasize the fact that the etiology as well as the true pathology is still unknown.

The diagnosis of a frank case of exophthalmic goiter, when the cardinal symptoms—tachycardia, tremor, exophthalmos, and enlargement of the thyroid—are all present, should be readily and easily made. But, unfortunately, every case, and in my experience the majority of cases, do not present this ideal picture. There may be only one or two of the cardinal symptoms present, and in many instances symptoms simulating other diseases seem to predominate. The onset is rather acute. The clinical course is definite and pro-

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15, 1926.

gressive, although with a tendency to remissions and exacerbations. The fact that the thyroid gland may or may not be enlarged, the usual presence of a thrill or bruit, the definite fine tremor, the presence or absence of exophthalmos, are symptoms well known to all. A peculiar stare is usually the earliest eye symptom noted. Loss of weight with increased appetite is a symptom of considerable importance. Vasomotor disturbances, such as flushing of the skin, excessive perspiration, visceral spasm in the stomach and intestines are some of the usual secondary signs.

It has been pointed out that gastric disturbance is often the first symptom complained of. We have recently had three such cases. Each patient came in seeking relief from indigestion, when a careful examination showed two or more of the cardinal symptoms of exophthalmic goiter, and in each case the basal metabolic rate was above plus sixty.

Tachycardia is the one symptom essential in the diagnosis of exophthalmic goiter. It is always present, the pulse rate varying from 100 to 160 or more. The patient often describes it as pounding of the heart. In the early or mild cases it may be noted only upon exertion. In some cases, although it may be present for a long time and the rate may be very high, the patient may complain of little or no symptoms of cardiac derangement. It is important to note that the tachycardia of neurosis subsides during sleep while that of exophthalmic goiter does not.

The most important and determining factor in the diagnosis is the basal metabolic test. By means of this procedure it is easy to rule out certain clinical conditions, such as, neuro-circulatory asthenia, neurasthenia, and other conditions simulating hyperthyroidism, which do not show an increase in the basal metabolic rate. Since the final test in diagnosis so often rests upon the basal metabolic reading, it is doubly important that this be accurate. Pool says that "the technic is not simple, and even with the best of apparatus and the greatest care it is not always possible to detect that the patient is under tension and therefore not in a basal state. With all of the possible sources of error it is often necessary to make second observations before a dependable result may be secured. Better to depend on pure clinical judgment than rest secure on a doubtful laboratory result because it is expressed in figures. When, however, reliable and con-

cordant results are secured, the metabolic rate is the most important single factor in the diagnosis of thyroid disorders."

The differentiation between exophthalmic goiter and toxic adenoma at times may be very confusing, since in both conditions the basal metabolic rate is increased. In adenoma with hyperthyroidism the onset is insidious and the course is variable, often extending over many years, so that when these cases—as a rule, benign adenoma in the beginning—become toxic, the patients are past early adult life. The toxicity as a rule in these cases is less severe than in exophthalmic goiter; a thrill and bruit are almost uniformly absent. Tremor is irregular and less marked. There is a definite tendency to hypertension; the diastolic pressure is sustained, and the pulse pressure is normal. In this connection it is interesting to note that Graham, of Cleveland, in a recent article, has endeavored to show that exophthalmic goiter and toxic adenoma are clinical varieties of a single disease. His conclusions are as follows:

- (1) We have been unable to recognize a single symptom or sign that is necessarily pathognomonic for exophthalmic goiter as opposed to toxic adenoma.

- (2) We have been unable to recognize a single anatomic or histologic alteration in the thyroid, in either the adenomatous or the non-adenomatous portion of the gland, that is necessarily pathognomonic for exophthalmic goiter as opposed to toxic adenoma.

- (3) There are equally good reasons for speaking of dysthyroidism in cases of toxic adenoma and exophthalmic goiter.

- (4) There are equally good reasons for speaking of hyperthyroidism in cases of exophthalmic goiter and toxic adenoma.

- (5) The degree of hypertrophy and hyperplasia of the thyroid determines the quantity of iodine that will be tolerated, without untoward effects, in both exophthalmic goiter and toxic adenoma.

- (6) The reaction to iodine is fundamentally the same in cases of exophthalmic goiter and toxic adenoma.

- (7) We have no alternative but to regard exophthalmic goiter and toxic adenoma as clinical variations of a single morbid state.

This tends to further emphasize our changing views concerning the present state of goiter.

The relationship between exophthalmic

goiter and pregnancy is very interesting. It has been stated that women with exophthalmic goiter rarely become pregnant, but that pregnant women often develop hyperthyroidism, which tends to subside soon after delivery. During the past year we have observed a number of cases in which the hyperthyroidism apparently grew worse after delivery. In one case vomiting and diarrhea that had persisted during the latter months of pregnancy continued several weeks after parturition. In this case the basal metabolic rate was plus 70, and the vomiting and diarrhea promptly checked upon the institution of iodine therapy. I think it is true that a great many cases do tend to subside following the termination of pregnancy, but, on the other hand, a great many cases, if left untreated, will go on to the state of hyperthyroid crisis.

An important side of the goiter problem, that has been studied most intensively for the past few years, is that of cardiac complications, and this constitutes the most common complication met with in all types of thyroid disease.

When serious cardiac damage is present, it is a dominant factor in both prognosis and treatment. The degree of frequency with which this complication is met is disagreed upon by many, but that it occurs sufficiently frequently to merit serious consideration in every case is admitted by all. The most common cardiac disorder is total arrhythmia and auricular fibrillation.

The authorities on the treatment of exophthalmic goiter are not of universal accord. That we are passing through a transitional period in the history of goiter is shown by the many recent and changing views concerning this disease. There will probably be as many new changes in the next few years. This may vitally affect the management of the disease, because the present treatment cannot be considered ideal. The ideal treatment of any condition is bound up in the removal of the primary cause; since this has not been determined in exophthalmic goiter, we must accept the best substitute, and this we believe lies in an early sub-total thyroidectomy in practically all cases. Early diagnosis and operation will produce a complete and satisfactory cure in the great majority of cases. Operations performed after a more prolonged period of intoxication produce results directly proportional to the extent of parenchymatous changes that have

taken place. The earlier the operation the less is the danger and the more likelihood is there of complete recovery. The operative mortality of the surgeon who has perfected his technic of thyroid surgery to a high degree is exceedingly low.

Of equal importance to the skill of the surgeon and the technic of the operation is the anti-operative and post-operative treatment. This will vary according to the degree of intoxication, the age of the patient, and the amount of cardiac involvement. Rest in bed with proper attention to fluids and diet, and in some cases the employment of certain drugs, such as bromides, luminal, digitalis, and quinidin, are indicated. Glucose may be used to great advantage in some cases.

Foci of infection, which seem to act as an exciting or pre-disposing cause, should be removed in all cases. In the mild cases they may be removed before the primary operation.

In the severe cases they should be left until after the primary operation.

The value of iodine and the method of administration, as outlined by Plummer, is too well known to be gone into in detail.

Suffice it to say that this one therapeutic measure has been the means of greatly reducing the mortality, cutting down the morbidity and rendering much less frequent the necessity for polar ligations and multiple-stage operations.

It must be remembered, however, that iodine is employed only as a preliminary treatment to thyroidectomy and not in any sense as a cure for exophthalmic goiter. Many warnings have been sounded, and I believe it is a timely admonition, that much harm is being done by the promiscuous use of iodine as a general therapeutic agent in the treatment of goiter. The same is probably true of iodine salt that is used after the age of puberty. Lahey, of Boston, says that "Medical practitioners should be urged not to administer iodine to patients before sending them to the surgeon."

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DISCUSSION OF PAPERS BY DRs. SMITH, BIGGER
AND CAUDILL.

DR. WILLIAM H. HIGGINS, *Richmond*:—Dr. Smith in his paper has brought up an extremely practical point in that he is dealing with a type of case which is found not only occasionally, but a type which is coming into the hands of practitioners both in the country and in the city. For a long time this ill-defined clinical syndrome was looked upon as neurasthenia or hysteria and was treated accordingly with unsatisfactory results. Dr. Smith has described very clearly the chief symptoms which we ordinarily find associated with what is termed thyroid deficiency. They are familiar to us all—extreme nervousness, fatigability, sometimes dryness of the hair and skin, sometimes vague pains over the body; sometimes over-weight or under-weight, and always a lowered metabolism. These physical and metabolic changes have been attributed to two possible conditions. From studies made in recent years it has been thought that these changes are directly due to a true deficiency of the thyroid gland. Certainly this assumption is true in some of the cases, as the satisfactory result of thyroid feeding demonstrates an exhaustion of the gland itself.

We must not forget, however, that a low metabolic reading may result from factors outside of the thyroid gland itself. For example, it has long been known that pituitary insufficiency will show a low reading. Some changes in the gonads will cause a similar condition; also starvation and emaciation, as well as certain types of psychoneuroses, may produce a profound depression of metabolism. Obviously, thyroid medication would have no effect upon such cases whose lowered metabolism are due to the causes which I have just mentioned. In order that the treatment may be carried out effectively, it is necessary for us to separate these types etiologically and not group them all as hypothyroid states. In the last three years I have had the opportunity of studying about forty-five cases showing low metabolic readings. In approximately 85 per cent there have been associated certain definite major pathological lesions which accounted for at least part of the symptomatology. In other words, it has been rare in my experience to find a case of pure hypothyroidism that is not associated with some pathology elsewhere in the body. I, of course, do not refer to the prenatal type or to those cases in which the gland has been destroyed since birth. I think we must consider, then, what part these other lesions take in causing the low reading that we speak of. It is possible that the co-existing disease may indirectly depress the thyroid gland and thus bring about a low oxidative process. The fact that hypothyroid states are found so commonly at the time of the menopause is presumptive evidence that the ovarian deficiency has in some way produced hypo-

active changes in the thyroid. Aside from this group, we not infrequently encounter patients with a lowered metabolism who show no evidences whatever of a thyroid deficiency. The cause of the lowered metabolism in these cases is unknown, but the fact that they are not helped by thyroid therapy makes it probable that they are in no way similar to the type referred to above.

In my experience I have never been able to see any beneficial results follow the use of glandular feeding in patients having a low reading unless they showed one or more of the usual signs of thyroid under-activity. I would say that these signs are as follows: Dryness of the hair or dryness of the skin, sensitiveness to cold, fatigability and vague pains over the body. The term "vague pains" is rather indefinite, I admit; but when you examine a person who shows no other tangible evidence of disease than this one symptom, hypothyroidism should be considered. In those cases where there is an absence of these signs, I doubt if we are really dealing with a hypothyroid case, but rather with one of those conditions which produce a lowered metabolic reading independent of the thyroid gland.

DR. CARRINGTON WILLIAMS, *Richmond*:—Dr. Bigger has covered the ground so thoroughly in his paper that I can add very little. The apparent paradox in the use of iodine in toxic goitre in the last four or five years is explained, I think, by Plummer, some four or five years ago, who differentiated toxic cases into adenoma and true exophthalmic goitre. He believed originally that the use of iodine added to the toxic symptoms in toxic adenoma, while it was of real benefit in the exophthalmic type. Further experience has shown that there are cases of toxic adenoma which are greatly benefited by the use of iodine. This apparent contradiction has been explained by Broadbent, who has shown that certain cases of adenoma will also develop exophthalmic goitre in the same fashion as the gland without the adenoma. In other words, in one case you may have this mixed type of adenoma and true exophthalmic goitre. I am inclined to think that the cases Dr. Bigger reported that were helped by Lugol's solution were of that mixed type. We have found several such cases in our clinic. Our experience in the use of iodine coincides almost identically with Dr. Bigger's, though we use rather larger doses than he does. We believe that the improvement gained by the use of Lugol's solution in exophthalmic goitre is a very transient thing, and when once obtained we believe that we can never get it again; so, if Lugol's is administered to the case of exophthalmic goitre with the idea of improving that patient, a very valuable pre-operative aid to the surgeon has been lost when that case finally comes to the surgeon. Dr. Bigger reported several cases in which this occurred, and our experience has been just the same. Some cases refused operation at first, and when they finally came back the administration of Lugol's did not help them. If there is any doubt about the diagnosis, we would not hesitate to use Lugol's. We believe the use of Lugol's should be limited to hospital cases and that the indiscriminate use of Lugol's before these patients come to the hospital takes away from them one of the great aids in the operation.

DR. WARREN T. VAUGHAN, *Richmond*:—We have a curious situation in the treatment of thyroid conditions in that the surgeon has a great field for operation, the roentgenologist has a great field, and the internist has a field. Each makes claims, and

the claims in many instances are not comparable. In the field of surgery in particular (for this is a discussion really of the surgery of hyperthyroid states), I believe that Dr. Williams has brought out perhaps a most important point. Many of the surgical statistics are based on hyperthyroidism as such, without differentiation into exophthalmic goitre, toxic adenoma, and toxic adenoma with exophthalmic goitre. I believe that most of the surgeons will agree that the best results in surgery are obtained in toxic adenoma and that decidedly less good results are obtained in Graves' disease. In Dr. Williams' statistics for 1921, his Group 3 are exophthalmic cases, in which he obtained decidedly less good results than in Group 2, which were toxic adenomata. The Mayo Clinic, I dare say, reports a higher percentage of satisfactory end results than anyone else in Graves' disease, and they report only 45 per cent cured after a period of years.

I was speaking with an X-ray man not long ago, who said he was not sure of the present X-ray situation in the treatment of hyperthyroidism. Some cases appear to do well; others not so well. The question arises as to whether, with a clearer differentiation between Graves' disease and toxic adenoma, the answer would come more easily. In exophthalmic goitre, if, as suggested by Plummer and others and as Dr. Caudill has brought out, we are not dealing so much with a hyperthyroidism as with an altered thyroxin molecule, as contrasted with the increased output of normal thyroxin in toxic adenoma, we can see that the two diseases are entirely different and call for an entirely different method of treatment. Certainly at the present time the treatment of choice is operative. The question is whether, ultimately—when we come to know the exact cause of exophthalmic goitre—a primary disturbance of the gland, or an endocrine and autonomic imbalance with the thyroid disturbance as only a part of the general disease—this attitude may be changed.

If we are dealing with a poor thyroxin and need more iodine, why cut out more of the thyroid gland? They do better for a time, because we have cut down the supply of poor thyroxin.

The surgical results are better in toxic adenoma than in Graves' disease, because in adenoma we have an encapsulated gland which can be removed. In Graves' disease, when the gland hypertrophies again, unless the thyroxin has been changed back to a normal thyroxin, the symptoms are likely to recur.

I say this to show the present unsatisfactory state of our knowledge as to the cause of Graves' disease. Certainly for the present, operation is the treatment of choice, though just as good results are claimed for medical treatment. Medical treatment, however, is not alone the administration of iodine; it is rest, proper nourishment, a high-calory, low-protein diet, psychic protection and adjustment, removal of infectious processes, etc.

DR. S. O. BLACK, *Spartanburg, S. C.*:—I am glad to have been present to hear the interesting and instructive papers by the various gentlemen this morning. I live down in the northwestern part of South Carolina, in the town of Spartanburg, which is situated in a section not endemic to goitre. During the past three or more years we have had 282 goitres, of which 72 were considered toxic and 210 were not.

In our country thyroid deficiency is not a problem. In fact, we have seen no case of cretinism and but three or four cases of myxedema which had not previously been operated. The normal thyroid secretion may be reduced in amount to a variable degree, and the resulting symptomatology will be myxedema

or cretinism, depending upon the amount of the reduction. During the summer just past a portion of my vacation was spent with De Gurvain, Professor of Surgery at the University of Berne, in Switzerland. One morning he showed us some fifteen or more cases of cretinism, some of them thirty or forty years old, yet only three or four feet in height. They had almost no hair on their heads, their skin was thick and dry, their fingers short and stubby. They stood or sat with their mouths open and tongues out and walked with a shuffling gait. Almost without exception they had monkey faces, with their noses short and thick, their faces wrinkled. Their sexual apparatus was not developed, and they had little or no mentality. They were dullards. Some were full size in stature. Some could not speak, and some could say only a few words. In some of the cases the glands were absent or atrophied; in others the glands were large and nodular, filled with adenomas or cysts of variable size, as large as an orange or cocoanut.

My conception of myxedema and cretinism was not only made clearer and more vivid, but in many ways was completely changed, especially after he did thyroidectomy in three different cretins whose glands varied in size from an orange to a cocoanut.

Iodine is not a curative for goitre. It will prevent simple struma in adolescence. It is used as an aid in preparing the exophthalmic patient for operation, and it will go a long way towards controlling the nervous symptoms in post-operative or recurrent hyperthyroidism.

Excepting the parathyroids, the thyroid contains more iodine than any other organ in the body. Iodine is essential to the function of that gland, and it is presumed that the iodine molecule is split up and that the iodine is converted into what Kendall has termed thyroxin.

Simple goitre may be congenital, in which instance it is due to iodine deficiency. Such a child will do best at the seashore, where the air content of iodine is thirteen or more times greater than in the air above the sea.

In 1911 it was discovered in the fisheries of Peru that brook trout could be so crowded and fed as to produce goitre, yet if the fish were so raised and so fed and given a small amount of iodine they would not develop goitre.

Certain cases of diffuse colloid goitre will promptly subside in size under iodine administration; in others there will be no diminution though it be given over a period of months.

Iodine is supposed to cause a hyperfunction of adenomatous tissue, and hence in that type of goitre it is contraindicated. At the present time it is being extensively used as a substitute for ligation or hot water injections preparatory to thyroidectomy. It has resulted in materially reducing the number of these procedures, though we have recently had several cases upon whom we were afraid to perform primary thyroidectomy, notwithstanding marked drop in their metabolic rate. Even after simple ligation two of them manifested much reaction, as evidenced by a fast pulse, marked erythema of face or elbows, a high fever, and much vomiting. Had we performed the complete operation, I fear we might have lost two of them, notwithstanding they had taken thirty drops daily of Lugol's solution for from ten to fifteen days.

I know of no group of toxic cases in which it is worth as much as it is in the recurrent hyperthyroid. Six months after operation, the metabolic rate should have returned to normal, the pulse should have quieted, the pulse pressure should have reduced

itself, and the patient, in order to be well, should be free from distressing nervous symptoms. If such be not the case, then hyperthyroidism persists, and iodine will do much to improve that patient's general condition. It will carry him or her along comfortably, almost free from nervous symptoms, for a period of months; though it seems to us that to insure a more permanent benefit the patient should be reoperated and more tissue removed.

DR. VINCENT W. ARCHER, *University, Va.*:—From the roentgenologist's standpoint, we have noticed the great association of abscessed teeth with hyperthyroidism in our clinic at the University of Virginia. Whether this is cause or effect we do not know, and we are wondering whether the observations of some of the other surgeons are similar to the observations made by us. There are, of course, two factors there, one being the presence of a condition which depletes the body, the other being abscessed teeth, and we cannot tell whether either is cause or effect or coincidence. Naturally we would expect in this condition to get a lowered local resistance on account of the higher metabolism, and from the lowered resistance about the teeth, a dead tooth that would ordinarily not cause any trouble, might become abscessed. We are just wondering whether our observations are similar to those of others, or not.

CANCER OF THE CERVIX—ITS PAST, PRESENT, AND ITS FUTURE.*

By W. L. PEPLE, M. D., Richmond, Va.
McGuire Clinic.

Is radium just one more agent in the present day renewal of the age-old frontal assault on cancer? Or is it something more? How primitive have been our weapons in the past! Fire and Sword! How elementary our methods! No strategy, no flanking movements, no cutting in between the enemy and his base of supplies. No blockade to deprive him of the sources of life. No propaganda to make the surrounding inhabitants so hostile that they will turn upon the invader and destroy him.

No, there have been none of these. Of course, there have been plans to these ends; volumes and volumes of plans, but they have all failed. So, in the end, we have gone back to first principles, just brutal frontal attack with fire and sword, and now a new mysterious ray is added to our armament. That seems to be all.

If one is anxious to find out his weaknesses, his faults and his limitations, just let him study intimately any one problem of his daily routine and he will be duly rewarded.

Cancer of the cervix has always been intensely interesting to me, but it has been utterly bewildering as well. When I go to

medical meetings and hear the statistical end-results of these cases, with surgery, by other men in other places, that so far surpass my own, or those of other men in my immediate vicinity, I begin to think that climate or latitude or altitude or distance from the sea or some other mysterious factor, of which I know nothing, must be at work to militate against me and my immediate neighbors. Had surgery given me 20 per cent, 30 per cent or 40 per cent cures in cancer of the cervix I am afraid I would not have been in a hurry to look for other methods of treatment. But all of mine died! If not soon, later, but the same fate overtook them all—they died!

And so I began to wonder if our cases were worse than other peoples' or if we were getting them so much later than other people, and if so, why? With this end in view, I went to Dr. S. W. Budd, of our staff, whose cases were earlier than mine, and we took fifty cases of cancer of the cervix treated by radium and decided to analyze them and see what kind of cases we were getting, and what results we were getting with them, and what could be done to make these results better.

The first thing we did was to make a chart of every item of information that every patient's record ought to show. Then we took the records and began to distribute the items under their proper headings. Now, here is where the first shock came. When we looked at that chart, the staring blank spaces where essential facts were missing was disheartening. Most of the histories were good, and many very full, but even these often lacked the very vital things we wished to know. It was obvious that the only way to take such histories was to have a card or chart as a guide so that no item of importance would be missed, and that the same facts in the same terms would be recorded in every case. Then, and then only, can we make accurate worth-while comparisons and possibly draw helpful, useful deductions. Around this idea we drew a card or sheet as a guide for the history taker. In addition to this function, it is an abstract of the patient's history and is kept in addition to the regular full record. It is a summary of every vital essential of the case, for locating and following up its progress in detail to its termination in cure or death. One side of the card is statistical and has to do with identification so that a proper follow-up may be had.

The exact kind of growth to be treated, the

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, in Norfolk, October 12-15, 1927.

kind and number of treatments given, and their results, local and general, expressed in as exact terms as possible from treatment to treatment, from time to time, and from year to year. Our general plan of procedure is as follows:

The diagnosis is made and confirmed by microscopic examination, the classification of Broders being followed. The specimen is obtained before operation or at the operation, preferably before. No case is recorded as cancer unless it is confirmed microscopically. I have seen one case of tuberculosis and two of malignant granuloma of the cervix which simulated cancer in every other way and might readily have been put down as cures of cancer had not the microscope revealed their true nature.

Under general anesthesia, unless there is some positive contra-indication, the growth is thoroughly destroyed with the cautery. Our reasons for doing this are, that prior to the advent of radium, heat was our most effective agent in treating cancer of the cervix. In following the diseased tissue with the hot cautery tip, it often reveals a far more extensive invasion than surface indications would have led one to expect. By getting this mass of diseased tissue out of the way, we can introduce our radium more deeply into the neutral zone where its task has been made less formidable, so to speak.

We also, by the burning, rear a barrier of leucocytes around the neutral zone which we believe to be a potent factor in resisting or overcoming the cancer cells. We usually employ a 50 mg. capsule, protected in the usual way, low in the cervical canal, and four needles aggregating 25 mgs. plunged as follows: two outward in the direction of the broad ligaments, and one in the anterior and one in the posterior lip, if the disease is uniformly distributed. If one lip is involved to the exclusion of the other, both needles are plunged into it. The lateral needles are directed outward in close proximity to the uterine arteries with a view to strangling or blocking them, tying, if one may put it so, a radium ligature about them. Plain gauze packing is now applied to maintain the radium in place and to balloon out the vagina so as to hold the bladder and rectum as far away from the radium as possible. Leaving this in for 24 hours gives a dosage of 1800 mg. hours. Our plan is to repeat this twice more at intervals of four weeks. Seldom is it necessary to do a second

cauterization, and rarely do we give a second anesthetic.

The contraction of the vagina and the retraction of the cervix often make the second and third applications difficult, but by patience and care we somehow manage it.

The intervals between treatments is arbitrary in a way. One waits for the reaction to subside before giving another dose. In some of the foreign clinics a three week interval is employed.

As one becomes more and more familiar with the use of radium, the conclusion is inevitably reached that whatever good is to be gotten by radium must be accomplished by the first smashing hammer blows. Recurrences later on will not respond one-half so favorably to even larger doses. Cures, if attained, must be gotten in the first big effort.

As will be seen on the card, there are places for six treatments. Some have required more than this, but our plan is to give, at least three, more if necessary. At the time of the first treatment, the patient's local condition, expressed as Class I, II, III or IV, signifying degrees of involvement, is set forth. At each subsequent treatment the local improvement, or lack of it, is noted.

Every patient is directed to report to her family physician for examination at least once a month for the first six months and once in two months for the next six months. We ask for a letter at the end of each quarter which we get from the referring physician. When patients come back to the Clinic, we examine them, record the local condition, their weight, their red cell count and hemoglobin estimate. At the end of each radium year we make an effort to get this information in detail either from the physician in charge or by a visit to the Clinic. In cases that go bad we try to get as accurately as we can the length of time the temporary improvement lasted before she began to break and go down hill. When death occurs we try to find out its immediate cause, especially as to evidence of local recurrence or metastases elsewhere or from inter-current disease.

Now we turn to the other side of the card which is covered with questions carefully planned to lay a foundation for getting cases earlier and turning other side lights on the disease that may prove helpful.

In considering age and race, bear in mind that the Negro who was comparatively free

from cancer thirty years ago suffers almost as frequently as the white woman now. Next, is she married or single? Her social condition? Cancer is said to be more common among poorer women than among those who live a life of ease. Whether this is due to the hard work or to the less careful hygiene, or both, it is worth considering, and if it be a fact it should be established. Is she from the city or country? Skin cancer is more prevalent we know among farmers than in housed workers. I wonder if cancer of the cervix shows the same rural and urban curve? The number of children the patient has borne? The number of cancers in childless women? Is cancer a penalty of motherhood? Her weight? Has she gained or lost? Her red count and hemoglobin? Here we fix a picture for future comparison expressed in pounds, red cells and coloring matter that will remain and not be a matter of memory or conjecture. What is her general appearance? What symptoms made you seek relief? This question should be put in every way possible until an intelligent answer is obtained. How long have you had these symptoms? You may have to work like a lawyer to get an accurate answer to this question, but it is very important to see how long she waited after her warning. It is often a shockingly long time. Is your menopause established? Has your life changed? Just when was this? Are your periods irregular or abnormal? How long was it after your periods stopped before the symptoms that made you seek relief came on? Was there spotting after the menopause or between periods? Was leucorrhoea your first symptom? Have you been frequently or constantly troubled by it? All of these questions will bring out answers which will lead us to working for earlier diagnoses. Are there any accompanying diseases or conditions, such as syphilis, diabetes, tuberculosis or heart or kidney disease to militate against recovery?

Condition of the cervix on first examination? We have discarded the vague terms operable and inoperable, fair, bad and hopeless, and grouped them into four classes, as follows:

Class I is the slight ulcer or abrasion in which the microscope alone will make the diagnosis.

Class II is when the disease is definitely confined to the cervix but is macroscopically cancer.

Class III is where the cervix is completely

involved and the local disease is encroaching on the vaginal mucosa; the broad ligaments may seem thickened, but the uterus is not fixed.

Class IV is where the disease has manifestly left the confines of the uterus, which is fixed, and hardened areas or masses are usually felt in the region of the broad ligaments.

This brings us to the last question. Is there evidence or history of a pre-existing lesion of the cervix?

In cases of Class III and IV the disease obliterates the tear in the cervix, so we try to find if there is a history of a tear or polyp or ulcer.

To sum up the past of cancer of the cervix, I would say that its diagnosis and treatment have been haphazard, empirical and unscientific. The two greatest contributions to it in my judgment have been the cautery, as advocated by Birn, and the operation of Wertheim,—the first for its actual accomplishment, the second for what it aimed at, as well as what it achieved.

The present hope of cancer of the cervix lies, first, in a closer study of the whole question with a view to prevention and earlier recognition—a closer study of the cancer itself to ascertain the best method of treating it, and a closer study of the patient who has the cancer to get a measure of her resistance and to see if this can be increased. Finally, we may thus choose intelligently the best methods of treatment singly or in combination.

Our problem is to do better work with what we already have, by close, meticulous care to the minutest detail of every phase of the subject. With such agents and measures as we have, we can, for the present, hope to kill fewer and to cure more patients than in the past, and to make the rest of them live longer and more happily.

The cure of cancer lies still in some hidden test tube behind the locked doors of the laboratory of the future. We should not stand idly by to await its coming, but should quicken our energies to do our best until it comes.

I had intended writing a paper full of statistics, but our histories in the past have been too inadequate to make them of real value. Of the fifty cases in our series, seventeen have had their treatment five years or more. Of these seventeen, five, or about 29½ per cent, are still living. One still has the disease locally, and probably there are also metastases

in her lungs. One not included in the five lacked just nine months of the five year period when she died of apoplexy. She was clinically free of cancer at this time.

Now, before closing, I would like to answer several questions before they are asked. Do I operate on any case of cancer of the cervix? I do not, and as I feel now, I never expect to do another hysterectomy for cancer of the cervix. Do I ever operate when the patient seems to be cured—in that false dawn when there is no local sign of the disease left; in that golden age of increased weight and general well-being when the partially fixed uterus has become movable and everything seems good? No, I do not, but I have been sorely tried and tempted. I am determined to see it through on the old lines. Do I use deep X-ray therapy as an adjunct to radium routinely? No, perhaps I should, but I want to see for myself what radium alone will do. I use X-ray in the presence of demonstrable intra-abdominal lesions, but not as a routine.

This paper is not what I intended it to be, but it shows my hopes and ideals for the future, in which I earnestly beg your help in suggestion and criticism.

CHART CARD

CARCINOMA CERVIX	DATE	FILE NO.
Name	Address	
Referring Physician's Name	Address	
Husband or Nearest Relative	Address	
Pathological Report	Broders	Type I-II-III-IV
1st Treatment	Local condition	Date
2nd Treatment	Local condition	Date
3rd Treatment	Local condition	Date
4th Treatment	Local condition	Date
5th Treatment	Local condition	Date
6th Treatment	Local condition	Date
Condition on Examination	Or by Letter	Date
Condition on Examination	Or by Letter	Date
Condition at end of 1st year		
Condition at end of 2nd year		
Condition at end of 3rd year		
Condition at end of 4th year		

Condition at end of 5th year

Length of time improvement lasted

Died Cause of Death

REVERSE SIDE OF CHART

Age	Race
Civil Condition	Social Condition
City or Country	No. of Children
Wt. Gain or Loss	Red cells—Hmg.
General appearance of patient	
What symptoms made you seek relief?	
How long have you had these symptoms?	
Is your menopause established?	
Are your periods irregular or abnormal?	
How long was it after your menopause before your symptoms came on?	
Has there been spotting after menopause or between periods?	
Was leucorrhea your first symptom or warning?	
Have you been frequently or constantly troubled by leucorrhea?	
Are there any accompanying diseases or conditions?	
Condition of Cervix	Class I-II-III-IV
Is there evidence of history of pre-existing lesion of the cervix?	

DISCUSSION

DR. JOSEPH T. BUXTON, *Newport News*:—This is a tragic disease, a disease that lays low the woman in the very prime of life. I have nothing but words of commendation for Dr. Peple's paper. He has handled the subject in a very able manner, and his conclusions are good. Strange to say, our mortality when operation is done is exactly the same; they all die.

Broadly speaking, cancer of the cervix may be divided into the inoperable and the operable. For the operable cases, we have the operation perfected by Wertheim, highly technical, requiring a great deal of surgical skill, and with a primary mortality of about ten per cent. I sometimes doubt whether I have the right to perform any operation carrying a primary mortality of ten per cent. In addition to this operation we have the measures mentioned by Dr. Peple. Radium treatment carries with it no mortality and, in the hands of experienced therapists, practically no morbidity. It does carry with it as high a percentage of cures as surgery, or higher. If we can take these patients who are down and out and whom death stares in the face, relieve the bleeding and foul discharge and prolong their lives for a few months or a few years, I think we have in our hands a measure which is worth while considering.

In quoting our mortality, I do not think we have a right to quote the mortality of some surgeon of

world-wide fame. Wertheim's mortality would be much less than mine, but he paid very dearly for his first hundred cases, for I think he had a mortality of about twenty-five per cent.

I want to make a plea for the early recognition of these cases. Dr. Peple has given you the mortality for the cases treated by radium in the early stages. If we can, by biopsy, make a diagnosis of cancer and subject these patients to radium in the early stages, we shall save many lives. I also want to make a plea to the obstetrician and general practitioner for more careful examination of their patients after confinement. We know that age and childbearing are very prominent in the causation of cancer, and I think we should be very careful to examine for tears and urge our patients to have lacerations repaired when found. In that way I think we shall go a long way toward preventing cancer of the cervix.

THE TREATMENT OF WHOOPING COUGH BY JENNERIAN VACCINE.*

By ST. GEORGE T. GRINNAN, M. D., Richmond, Va.

The treatment of whooping cough by vaccines or drugs has been very disappointing. There are vaccines on the market for the prevention and cure of whooping cough and reports vary greatly as to the value of such vaccines.

The specific vaccine for whooping cough should be less than one week old to be effective for either prevention or treatment of this disease. A supply of fresh vaccine with date of the preparation should be available for cases to be immunized. No such supply is now available except in large centres of population.

The observations of Gaston Pochon¹ in the treatment of whooping cough, if found successful by a large number of observers, will be of great value. Pochon noted that the "coceò-bacillus causing pertussis seldom remains in the sputum longer than three weeks. The serum of convalescent cases which have continued longer than four weeks is effective, if injected before or during the incubation period. If employed at the end of the incubation period, it renders the case less severe. It is inactive after the incubation period. Intra-laryngeal injections of ether, gomenol oil or adrenalin are useful in pertussis, not yielding to serums or vaccines."

Pochon confirms the conclusions of Dietrich that anti-variolar vaccine has proved a valuable resource in pertussis, but is not applicable to children who have been vaccinated or are resistant. If Jenner, in addition to preventing

small-pox in 1870, cures pertussis 150 years later, Jennerian vaccine will become a greater aid to humanity.

For two years the writer has used Jennerian vaccination in all cases of pertussis, not vaccinated, as soon as the coughing paroxysms occur, or later. The Jennerian vaccine acts more effectively the earlier it is used in pertussis. In many cases, as soon as the pustule is formed, there is an immediate cure. The suffocation is relieved, the vomiting stopped and the whoop is not noticed. They sleep all night.

In some cases the severity of the disease was reduced 80%, the duration shortened. Such cases had suffered from whooping cough for five or six weeks. It was noticed that Jennerian vaccine was effective in later cases, but to a lesser degree.

One boy, aged 2, with a severe pertussis, seemed entirely cured as soon as the vaccine reached the pustular stage.

A girl, 8 months old, with a severe pertussis, was entirely cured in 10 days.

A boy, 16 months old, with severe pertussis four or five weeks and bronchitis complicating, was much improved. The older sister, aged 4, just beginning, was apparently cured as soon as the vaccination was pustular. In ten days to two weeks, there was a marked change in cases vaccinated.

The cases treated by Jennerian vaccine had never been vaccinated before. Pochon reports cases in which pertussis vaccinated failed and Jennerian vaccination was successful.

Jennerian vaccine was only used in cases in which there was positive diagnosis, with a developed whoop, and the source of infection determined.

No explanation can be given for the reason why Jennerian vaccination relieves pertussis. The use of malaria to relieve paresis, and typhoid vaccine to relieve arthritis, the injection of milk to raise temperature and cure or benefit certain conditions, are now used. Salvarsan given to a patient does not mean that arsenic can be recovered in the spinal fluid.

More tests are needed to establish the true effect of Jennerian vaccination on pertussis before it will be generally accepted; this subject is presented with the hope that this simple treatment will be given trial by other physicians.

925 West Grace Street.

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, in Norfolk, October 12-15, 1927.

1. Pochon, G. *Med. Infantile* Paris 30, 203, July, 1924.

DISCUSSION

DR. W. B. McILWAINE, *Petersburg*:—This was first reported in American literature in 1924, and I reckon a good many of us read it and then forgot all about it. But Dr. Grinnan never forgets anything, and he tried it out. Of course, whooping cough in Virginia is not nearly the scourge it is in New York. When I was in the Willard Parker Hospital, we had whole floors full of it. Here in our state we do not have anything like the mortality they have in New York. Still we do have whooping cough with us all the time, and I expect to try this out. I hope all the general practitioners will sometime during the next year try this, make a record of their cases, and report back to Dr. Grinnan or to the Society; and if it is something good we can accomplish something here in Virginia. I do not, in my private practice, have much trouble with whooping cough, and I have had some good results from whooping cough vaccine. Why we get good results from vaccine or from the injection of milk or from a pustule we do not know; it has not been worked out. But practitioners should try these things that are simple and do no harm, and then let scientific men, laboratory men, work out why we get good results. I hope we shall try this out in Virginia, for it might be of value. Then we can get a large group of statistics and possibly make some little progress in the treatment of whooping cough.

DR. ROY K. FLANNAGAN, *Assistant State Health Commissioner, Richmond*:—I want to say for the State Board of Health that I hope you will not wait for a child to have whooping cough before it is vaccinated. There are so many babies, however, that are not vaccinated that I am glad to get this additional reason for having it done.

DR. ROGER H. DENNETT, *New York City*:—This is a very interesting observation, and I think that we did not pay enough attention to it when we first read about it. I congratulate the writer upon having done some work along this line. I, too, believe that too much theory interferes with clinical work and that anything new of this sort ought to be tried out. There are some difficulties in the way, however. In the first place, with us most of our babies with whooping cough will have been vaccinated, so that our situation might be a little different. There is a positive superstition among the poorer and more ignorant class of people in New York City about vaccination against smallpox; they feel it prevents almost anything. Of course, the Department of Health has fostered that superstition, because it aids in getting the people vaccinated. Most of the better class of poor people are vaccinated within the first six months of life.

The treatment of whooping cough with vaccines still rests on a far from scientific basis. I still have hope, after all these years, that vaccines of various sorts will come into their own. They certainly stand a good chance of so doing. I find that the prophylactic use of whooping cough vaccines is not very efficient; I find the children still have whooping cough just the same. So I give my patients the option of being vaccinated if they want to, but warn them they may have whooping cough just the same. In treatment, I see striking results, and I use the stock vaccine. It is put up in glycerin, just as is the smallpox vaccine; else it would not be stable. In many cases the results are striking; in other cases it does not help at all. Whooping cough is, indeed, a scourge in New York City. Every few years we have a fertile ground for whooping cough, and many children get it. Almost all the children who have

not had whooping cough acquire it, and the mortality is very high. Pope (?) wrote an article some few months ago showing that the mortality in New York City from whooping cough is greater than that of scarlet fever and diphtheria put together. The complications of whooping cough are very fatal.

I think this is worth trying, and I am glad to have heard this paper.

DR. GRINNAN (closing the discussion):—I told this to a physician in Richmond who is about fifty years old. He said when he was a child his mother said they must be vaccinated. Her doctor said: "Hold on a while; they will get whooping cough, and when they do I will get a scab and vaccinate them and they will get along better."

CONSERVATION OF THE FUNCTION OF THE CERVIX IN THE TREATMENT OF CHRONIC ENDOCERVICITIS.*

By EDWIN L. KENDIG, M. D., *Victoria, Va.*

The unusual is generally more interesting than the ordinary. In medicine, however, the ordinary or common diseases should receive our best attention. It is stated by some that chronic infection of the cervix causes more loss of time and more inconvenience to those affected than any other gynecological condition.

In discussing the function of the cervix, consideration must be given to its anatomy and pathology. In discussing its function in connection with the treatment of chronic endocervicitis, consideration must also be given to cervical infection, the causative factor.

In embryo, the fundus of the uterus develops from the first part of Müller's duct and the cervix from the second part. These two make up what is known anatomically as the uterus.

The muscular layers of the cervix have a greater proportion of connective tissue than the fundus. This connective tissue renders the cervix firm and prevents easy dilatation or distortion of the cervical canal.

The muscular stability of the cervix and shape of this canal, with its orifice, makes a strong and reinforced opening to the cavity of the uterus and renders the approach of bacterial infection from the vagina to the cavity of the uterus difficult.

The cervix mucosa is composed mostly of columnar epithelium with deep racemose glands. The epithelium of the lower part of the canal presents numerous papillae and gradually changes to a squamous epithelium as it approaches the external os. The epithelium of the upper two-thirds is ciliated, and in this

*Read before the Southside Virginia Medical Association at Norfolk, Va., December 14, 1926.

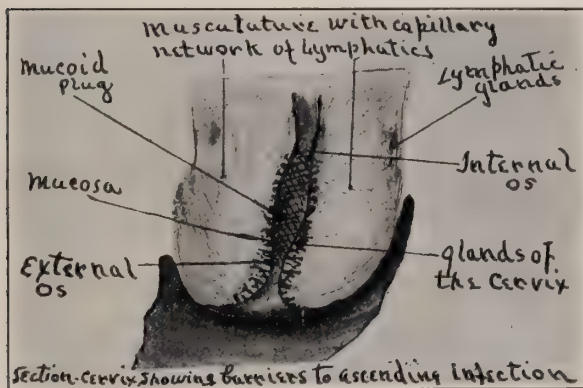
area the mucous membrane is provided with numerous deep glandular follicles which secrete a clear viscid alkaline mucus. This secretion under normal conditions forms a thick mucoid plug in the cervical canal, and assists in preventing the ascent of infection from the vagina to the uterus and fallopian tubes above.

The lymphatic structure of the cervix is important. The lymph passes from the mucosa through minute ostia directly to the muscular layers, reaching into every part of the musculature by an extensive capillary net, and later draining into collecting channels which course parallel to the larger uterine and ovarian blood vessels of the broad ligament. Considerable investigation has been directed to the lymph system of the human body to determine the definite physiological functions of these structures, particularly in relation to the invasion of the body by pathogenic bacteria. Waters* says, "To realize the importance of such studies it is necessary to consider only the fact that at every point where tissue surfaces are in direct contact with, and therefore exposed to the lodgment of, an infection by such or-

pose for this anatomical structure more than merely a communicating channel. The anatomy and function of the vagina makes certain its invasion by the various bacteria, including those of a pathological nature. Some of these bacteria find their way into the cervical canal. In the normal healthy woman practically no bacterial infection is found in the body of the uterus or in the fallopian tubes. It is said that the mucous membrane of the cavity of the uterus with its monthly menstruation is not very liable to infection of this nature, but the tubes have no such immunity. The ascent of bacterial infection from the vagina to the mucous lining of the uterine body and tubes is made difficult by the anatomical and physiological function of the cervix. The shape of the canal and its constrictions at the external and internal ora act partly as a barrier, and occlusion is completed by the ever present alkaline mucoid plug secreted in the upper part of the cervical canal. In addition to this, the well developed lymph system of the mucosa of the cervix does battle with those bacteria which become lodged in this canal.

It is concluded from the work of Curtis and other investigators that pathogenic bacteria, with the exception of gonococci, ordinarily will extend no further up the birth canal than the internal os. Extension of such infection up the birth canal, however, does take place when the cervix ceases to function normally, that is, when the cervix becomes pathologic. These pathological changes have their origin in acute infections which later become chronic. Erosion, catarrh, hypertrophy, cystic degeneration, and nabothian cysts of the cervix are the direct result of a chronic inflammatory process, brought about by this infection. The gonococcus, the streptococcus, the staphylococcus, and the bacillus coli communis are the chief offenders.

Lacerations, considered so important a few years ago, are now mainly recognized as one of the avenues through which, along with other injuries of the cervix, these infections enter. Under favorable conditions infection will invade the mucosa of the cervix. After overcoming such resistance as the lymphatics may offer, the bacteria take up their domicile in these structures and then follow the train of symptoms so common in endocervicitis. By establishing the infection in the mucosa of the cervix, the invading bacterial army advances its line of offense to a point of decided



ganisms, they are abundantly supplied with lymphatic structure, which apparently serves as a first line of defense in preventing their entrance to the surrounding tissues and the blood stream." Hence the conclusion, that the abundant lymph supply of the cervix serves as a powerful defense against the pathogenic bacteria which find their way into the cervix.

By some authorities it is thought that the cervix acts only as a passive communicating channel between the cavity of the uterus and vagina. If so, a large part of the anatomy of the cervix is useless. Functionally, the human body has a few useless parts. There is a pur-

*Waters, B. H.: Tice Practice of Medicine, Volume II, 569.

advantage. From this point, infection will enter the blood stream and produce to a greater or lesser degree systemic symptoms of focal infection. Infection will, unless removed, eventually overcome lymphatic resistance and be carried through the lymph channels to the structure in the broad ligament and other parts of the pelvis. The infection will, through inflammatory processes, distort the contour of the cervical canal, partly destroy the mucous lining of the cervix, replace the normal alkaline mucous plug in the cervical canal with the infected discharge of an endocervicitis and thereby open up a way for the direct advance of this invading bacterial army from the cervix into the cavity of the uterus and into the tubes.

For a half century or more gynecologists have been endeavoring to find some plan of treatment or some operation for the relief of a chronically infected cervix, but in the words Matthews,* "As yet no method has been discovered that is universally satisfactory." However, with a recognition within the last few years of its infective etiology, the removal of the infective areas is the rational treatment.

Taking into consideration its function and the probability of subsequent infections, the cervix should be left, after removal of infected areas, as nearly normal as possible. This may be accomplished by leaving intact the musculature and removing only as much of the infected mucosa and its glandular structure as will be necessary to eliminate infection. These infected areas are best removed by enucleation or by the use of a cautery.

A method of using the cautery consists of puncturing the cysts and striping, to the depth of the infection, the diseased mucosa with a small nasal or knife cautery, leaving a portion of uncauterized mucosa between the treated areas. The treatment may be repeated if necessary. It would seem that the portions of infected mucosa, left between these cauterized punctures and strips, would continue to give trouble. It has been found, however, that following this use of the cautery, these left-in-strips of mucosa in six or eight weeks grow over the cauterized areas, thereby reforming the mucous lining of the cervix, and that, except in severe cases, the infection in these left-in-strips usually disappears by the time healing is completed. These left-in-strips are no doubt sterilized by the direct effect of

the heat of the cautery on the micro-organisms present, and by the stimulation of local phagocytosis and metabolism brought about by tissue irritation and better drainage. The result, if successful, is a cervical canal lined with healthy columnar cell or cervical type mucosa.

Severe chronic infection of the cervix may not successfully respond to this treatment and may require complete removal of infected mucosa with glandular structure. This complete removal may be done by cautery or enucleation. In complete removal by cautery there is danger of post-operative stenosis. The most satisfactory method of complete removal of the diseased mucosa of the cervix, with its deep glandular structures, is enucleation by the Sturmdorf operation. In this operation all of the infected mucosa and its glands are cored out with a knife and the raw surfaces are covered with vaginal mucous membrane.

Both the cautery striping method and the Sturmdorf operation conserve the musculature of the cervix, and leave intact the internal os. Cautery striping of the cervix in the treatment of chronic endocervicitis also conserves the contour and normal mucous lining of the cervical canal, which has the function of assisting in fighting back infection. In this respect this method has a decided advantage over the Sturmdorf operation. Enucleation by the Sturmdorf method removes at the time of operation all the infected area. In that respect Sturmdorf enucleation has the advantage of a more certain removal of the infection. These points should be borne in mind in determining the plan of treatment to be used.

In making a choice between cautery striping and the Sturmdorf enucleation in the treatment of chronic endocervicitis, the cases can be more easily considered in these general classes.

Conservation of function of the cervix is not necessary in some cases. Among them might be enumerated those with occluded or excised tubes, those well passed the menopause, and those having cervices so badly diseased and infected that there is nothing left to conserve. In such cases the probable result of the treatment and the general circumstances of the case should be the only determining factor in choosing between the two methods of treatment.

In cases with severely infected cervixes, the Sturmdorf operation is the method of choice. It will be well to bear in mind, however, that

*Matthews, H. B.: *Journal A. M. A.*, November 27, 1926, 1802.

even in severe cases, cautery striping, which is simple and of little inconvenience to the patient, may be first tried and, if not successful, enucleation may be resorted to.

Cautery striping is the treatment method of choice in young and middle aged patients with mild or moderately severe chronic endocervicitis. The result of this method in these cases shows that in most instances it will remove the infection and conserve to the cervix a greater part of its original function.

CONCLUSIONS.

1. The cervix is not merely a communicative channel, but is a door between the vagina and cavity of the uterus, an important function of which is to battle against spreading infection from the vagina.

2. In the treatment of chronic endocervicitis, the complete removal of the infection should be given first consideration and the method of treatment adopted should be the one which will in the end accomplish this object.

3. In selecting a method of removing the infected areas of a chronic endocervicitis consideration should be given to conservation of the function of the cervix. Cautery striping and enucleation seem to offer the best methods of conserving this function. Of the two, cautery striping, when indicated, is the method of choice.

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ELONGATED TRANSVERSE PROCESSES OF THE FIFTH LUMBAR VERTEBRA AS A CAUSE OF LUMBAGO.

By S. A. RHYNE, M. D., Statesville, N. C.
 Davis Hospital.

There are numerous causes of backache or lumbago. A few of the most common are sacro-iliac joint strain, traumatic arthritis of the spine, neuritis of the posterior nerve roots and anatomical variation of the transverse processes of the fifth lumbar vertebra. It is the purpose of this paper to stress a few of the more important objective and subjective symptoms of the latter cause. When we consider the close proximity of the normal trans-

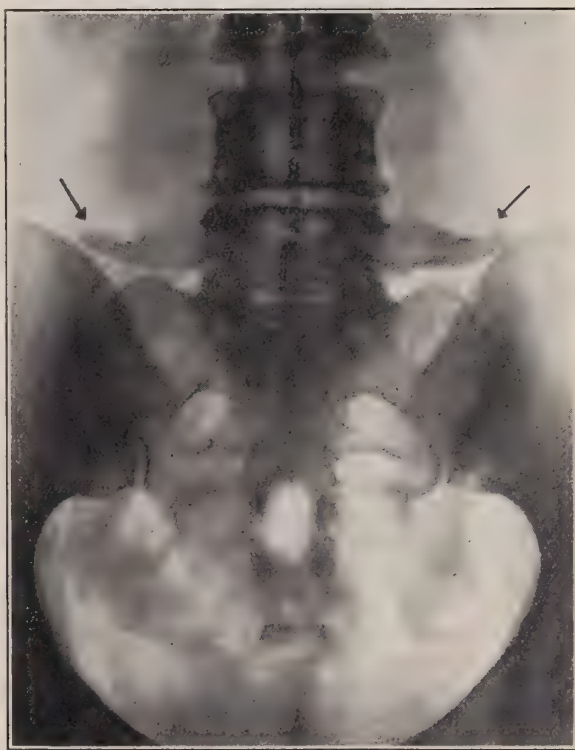


Fig. 1.—Case one shows the increased width and thickness of the transverse process of the fifth lumbar vertebra on the left with the sharp bony spur projecting from the lower border.

verse process of the fifth lumbar vertebra to the crest of the ilium and also the wing of the sacrum, it is easy to see that a very slight variation of the process of the fifth lumbar vertebra, either outward or downward, would in turn cause untold pain at the local site, in addition to referred pain up the lumbar region of the back and down the thigh and leg of the corresponding side. There are various causes of this variation of the bony parts, such

as trauma, congenital deformities and various bone diseases of the lumbar vertebra.

In differentiating this condition from the other types of backache, the X-ray is probably the most accurate means, but there are a few very characteristic symptoms that are almost invariably present. The patient is unable to stoop over or turn the body from side to side on the pelvis without excruciating pain, but can sit down straight very readily. These patients have usually suffered for some time and have usually exhausted all of the more common methods of treating backache. In the past year we have found in routine examinations several patients with this condition. I will now cite a few of the more typical cases.

Case 1. White, male, age twenty-four. Occupation, carpenter. This patient entered the hospital on June 29, 1926, complaining of pain in the left hip extending down the posterior part of the thigh and leg to the ankle.

Past History: Negative except for childhood diseases. Tonsillectomy three years ago, which was done in the hope of relieving pain which he was having in the hip.

Family History: Father living, age sixty-two years. Mother living, age fifty-eight. Three brothers and two sisters all living and enjoying good health.

Present History: Four years ago patient began to have sharp piercing pain in the region of the left buttock, which radiated down through the posterior and middle surface of the thigh. This pain was relieved by several days' rest in bed, but when the patient began moving around again the pain returned and has been more or less continual for the past three years. No drug seems to have any effect on the pain except opiates. The patient feels good at all times except for the suffering.

Physical Findings: Robust, stout, male individual. Weight 168 pounds. Blood pressure; systolic 125, diastolic 80. Tonsils removed three years ago. Throat clean. Teeth and gums in good condition. Thyroid not noticeable or palpable. Heart and lungs competent. Abdomen negative for any masses or tenderness. No present or past evidence of hemorrhoids. Laboratory findings were negative all the way through.

X-ray of the spine showed the transverse process of the fifth lumbar vertebra on the left side about twice the normal width and

somewhat longer than the right side with a sharp projection from the lower and outer border which apparently was attached and resting on the crest of the ilium.

This patient was operated on June 30, 1926, under local anesthesia. The incision was made through the outer border of the erector spinae muscle and the outer part of the transverse process of the fifth lumbar vertebra on the left side removed. The patient had an uneventful recovery. He was discharged from the hospital July 11, 1926, and advised not to do any work for a month. On August 15th the patient was in to see us, feeling good. Had not had any recurrence of the pain. Had gained seven pounds. The patient resumed his work as a carpenter about August 20th.

Case 2. White, female, married. Occupation, house work. Patient entered hospital September 11, 1926, complaining of pain in back and both sides. The pain is referred down to the thighs and into the legs with excruciating pains in the calf of both legs but more marked on the left side. Pain is much worse after having been on feet all day.

Past History: Childhood diseases when young. Appendectomy five years ago. No complications. Began having pain in the back two years ago. The pain would be almost continuous for a period of a week or more at the time. Could be relieved by taking aspirin and resting at first, but for the last year the pain has gradually been growing worse. The periods of pain lasted longer and nothing relieved them except opiates. Rest in bed does not seem to give relief.

Present History: Patient admitted to hospital September 11, 1926. Temperature 98 degrees, pulse 86, respiration 18. Complaints of pain in back and in both thighs and legs.

Physical Findings: Heart and lungs negative. Abdomen negative. Very tender over region of sacrum.

Laboratory Findings: Negative, except for urine which showed fifty pus cells to the field and faint trace of albumin.

X-ray of lumbar spine shows a very definite elongation of transverse processes of the fifth lumbar vertebra with the distal portion of the process of the left side resting on the crest of the ilium.

This patient was operated on September 22, 1926. The transverse processes were removed with the same technique as in Case 1. The pa-

tient left the hospital twelve days later, and at thirty days after operation patient was free from all pain.

Case 3. White, male, married. Occupation, works in glass factory. Patient came into office August 5, 1926. Chief complaint, pain in left gluteal region. Extends down left thigh and leg.



Fig. 2.—Case two described above shows a very definite lengthening of the transverse processes on either side of the fifth lumbar vertebra with an articulation of the extreme end of the left process to the posterior border of the crest of the ilium.

Past History: Negative.

Family History: Negative.

Physical Findings: Well developed individual, somewhat emaciated at the present time. Blood pressure 125/80. Teeth all out. Tonsils apparently not diseased. Heart and lungs negative. Abdomen negative. Very tender over left sacro-iliac joint.

X-ray of the spine shows the transverse process of the fifth lumbar vertebra on the left side elongated possibly one inch outward and downward, with an apparent articulated surface on the posterior border of the crest of the ilium.

Laboratory Findings: Urine negative. W.

B. C., 10,500; polynuclears 82; lymphocytes 18; hemoglobin 85; R. B. C., 5,200,000.

Present History: Began having pain in back and region of left hip and thigh four months ago. Was treated for rheumatism for one month, then advised to have teeth taken out as they were somewhat diseased. Patient was forced to stop work one month later on account of the pain, and has not been able to do any work since then. The only relief he gets from the pain is taking an opiate of some kind.



Fig. 3.—Shows a normal condition of the transverse processes of the lower lumbar vertebra. The arrow points to normal space between the transverse process, the wing of the sacrum and the crest of the ilium.

In view of his history and the X-ray findings, the patient was advised to come into the hospital for operation, which he did on November 18, 1926. Articulated surface of the transverse process of the fifth lumbar vertebra was removed from the left side under local anesthesia. The patient made an uneventful recovery. Left hospital November 28, 1926, greatly relieved from the pain. Two weeks later he came in for examination. Had gained six pounds since leaving the hospital. His pain in the back and hip had entirely disappeared. Patient was advised to return to work at the end of the third week.

THE TUBERCULOSIS SITUATION IN VIRGINIA.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

At the annual meeting of an organization of this kind it is customary for the President

*President's address at the meeting of the Virginia Tuberculosis Association, held in Richmond, February 18, 1927.

to open the session with a few more or less appropriate remarks, while the Executive Secretary gives the actual account of the work done during the past year, and the real address of the evening is given by a distinguished visitor from away.

I am, therefore, going to try to present to you a sketch of the tuberculosis situation in the State of Virginia, though I am not going to report exact figures but am merely trying to draw a picture that may be easily remembered by everyone.

To begin with, what is the magnitude of the tuberculosis problem in Virginia? In 1925 there were 2,715 deaths from this disease, giving us a rate of 118 which is more than 30 per cent above the rate for the Registration Area of the United States, which is 89. As some people prefer to think in dollars rather than in lives, it may be useful to put our statistics on a dollar basis. The Metropolitan Life Insurance Co. has computed that the State loses over \$20,000.00 with each male death from tuberculosis. To be conservative we will take Homer Folk's standard and estimate these lives at \$5,000.00 each which will show a loss of \$13,575,000.00 from tuberculosis in 1925 in this State. So that, looked at from either standpoint, it is a problem worthy of our most earnest efforts.

Now let us see what is being done to remedy the situation. And, first of all, what general agencies have we at work on the problem?

a. There is the State Board of Health, with the Sanatoria and Bureau of Tuberculosis.

b. The local health organizations.

c. Voluntary tuberculosis societies.

Then there are various established procedures used everywhere in the fight against tuberculosis, which may be grouped as follows:

1. Sanatoria for the cure of early cases.

2. Hospitals for the care of advanced cases.

3. Clinics and nurses for finding cases of tuberculosis, and the care of cases which can not be hospitalized.

4. Preventive work, mainly for children, such as preventoria, nutrition classes, open air schoolrooms and general health work in the schools. As a part of each one of these groups we have the education of the people in regard to the disease.

We all agree that the State Sanatoria are running efficiently and the patients get as good results as they do in any other state. The question comes in regard to their size, for it

has been recently shown by Drolet that the tuberculosis death rate in the various states is in inverse proportion to the number of hospital beds. It is also generally conceded as a rough measure that there should be one bed for each death from tuberculosis. The State of Virginia furnishes 535 beds in the white sanatoria, as against 1,299 deaths, and 146 beds in its colored sanatorium, as against 1,416 deaths. It can very readily be seen that the State Sanatoria alone can not properly provide for the problem, nor should they be supposed to do so as there should be various local hospitals to take care of advanced cases leaving the sanatoria free to take care of the early cases. To the State Sanatoria beds should also be added sixty-five beds in a private sanatorium at Salem, making the total close to 600 white beds.

When the West Act was passed and the Mill Tax was assessed for tuberculosis, it seems to have been the idea that the State Board of Health would take care of the whole problem and relieve the local communities. In this Act provision was made for the establishment of District Hospitals and Blue Ridge Sanatorium was built from this tax. It was furthermore agreed to pay for fifty absolutely charity cases out of this fund, though the number last year was reduced to forty.

When it comes to city hospitals, we only find one city with anything like proper provision for its white cases, Richmond having ninety-two beds at Pine Camp, though Danville has thirty-five beds at Hilltop Sanatorium which is run jointly by the city and voluntary organizations. Norfolk has about twenty beds for white people at the City Home. For colored people Richmond has thirty-three beds and Norfolk twenty. I have been able to find no other provision for tuberculosis cases in the State except for criminals and insane. This changes our figures somewhat, giving a total of 747 beds for white and 199 for colored people, which is better but still far below the number that we should have, as it represents a shortage of 552 beds for white people and 1,217 for colored.

The striking feature of this compilation shows that while the State is doing well for white and pretty well for colored, the cities and counties, with the exception of Richmond in the provision of white beds, are not in any way doing what they should for tuberculosis, and it seems utterly impossible to cope with the tuberculosis problem, especially in the col-

ored race, unless the city governments are awakened. This is even more markedly shown when we find that the cities of the State of Virginia have only appropriated in the neighborhood of \$100,000.00 directly to the fight against tuberculosis and that Richmond has appropriated nearly \$80,000.00 of this, leaving only a little over \$20,000.00 for the remaining cities of the State. How much of this is due to the feeling on the part of the cities that they can pass the buck to the State Health Department is quite hard to estimate, though it is undoubtedly thought by many that the direct Mill Tax should take care of everything.

When we turn to the matter of clinics, we find that Richmond has for many years run one for white and one for colored, that Petersburg, Lynchburg, Roanoke and Portsmouth are running clinics with the aid of voluntary organizations, while a voluntary organization in Norfolk has long been running its clinic with the help of a small appropriation from the city. Other cities and counties of the State are apparently depending on the occasional visits of the traveling clinic run by the Health Department. I do not mean by this to disparage the excellent work done by these clinics, but feel that in the cities and thickly populated counties they are necessarily of a more or less temporary nature and should be relieved by the municipalities as soon as practical.

Though the tuberculosis Mill Tax was repealed by the last Legislature with the general revision of State taxes, the appropriation to the State Board of Health for tuberculosis work was increased about \$14,000.00 a year, it being in the neighborhood of \$291,000.00 at the present time. This with \$100,000.00 the cities appropriate makes something less than \$400,000.00 that the State and municipalities are giving each year to tuberculosis work, or less than 16 cents per capita. When we remember that the State is losing over \$13,000,000.00 a year on deaths from tuberculosis, we can understand how utterly inadequate this total is and that it must of necessity be augmented by voluntary agencies.

When the West Mill Tax law was passed, it seemed to be its purpose to give the State Health Department authority over the whole tuberculosis work in Virginia. Thus, beside running the sanatoria, for which an extra appropriation is made, it had authority to establish District Hospitals; to pay all expenses

for indigent cases; to establish clinics and to do all kinds of educational anti-tuberculosis work, which, as you see, practically covers the whole field. This special tax was supposed to raise enough money to provide for all types of work, for the Health Commissioner was given authority to spend on other forms of health work any surplus which was left at the end of the year after completing the work against tuberculosis. This very elaborate program has, however, never been attempted, and last year the Legislature took away the special Mill Tax feature putting the whole thing in the general budget.

There is, consequently, a very large part of the work in Virginia which is left to unofficial agencies which will have to attempt to fill in the gaps and get the State or the local authorities to take care of that part of the work still uncovered. What agencies are there in the State of Virginia to do this work? Beside the State Association, which fundamentally should be a federation of local associations for their common good, there are only two well-established continuously functioning local societies, the one in Richmond and the one in Norfolk, both of which were in existence before the State Association was founded. Beside these there are many Seal Sale Agencies for the most part doing very little beyond the raising of money by selling Seals at Christmas time, although a few of them are furnishing the local Health Departments with part of the money needed to carry on the clinics and nursing, while in Danville this money goes to Hill-top Sanatorium.

The Virginia State Association therefore has a very large field in the organizing of local tuberculosis societies which can co-operate with the existing authorities and help establish more efficient tuberculosis work in the various communities. This will in nowise interfere with the work of the State Health Department which with the recent change in the law is now certainly not in a position to carry out the elaborate scheme presented by the West Act. In so doing the State Association will no longer be merely an office for the sale of Christmas Seals, but will be able to do real constructive work all the year round.

We must not forget that the State Association is really supported by the localities through a percentage of the Christmas Seal Sale money, raised by them, and consequently owes the localities just that much service and should feel

the responsibility which the acceptance of this money places upon it. In other words, we should not feel that we have done a community a service by allowing Christmas Seals to be sold there but on the contrary that we are indebted to the community for the percentage of the Seal Sale returns which it puts into our treasury. When viewed from this standpoint, the Board of Directors of the State Association should be made up, as largely as possible, by representatives from the local societies, though I am not going to propose any basis of representation at this time but leave this for future consideration.

The State Executive Secretary should be primarily interested in the formation of local societies and in helping them carry out a useful program. In doing this there should be as much independent co-operation with the State authorities as is possible, for there is no need of conflict between these two organizations, but, on the other hand, the State can be served better by the two working hand in hand rather than by having the Association entirely subservient to the governmental department.

This is the attitude of the National Association, and the Virginia Association has made some attempt to carry out this policy, though hardly with the most glittering success. I feel, however, that if active local societies can be established all over the State, this co-operative work can be really effective, and that the State Department will then be very glad to accept the assistance which can be furnished in the various localities. Of course, it would be impossible to put this into effect immediately. It will take hard work on the part of an efficient executive who is well trained in all sides of the work, who knows tuberculosis from the actual handling of cases, and who has business ability enough to organize societies, as well as handle the Christmas Seal Sale. It is possible that we may have to get two people to divide these duties, but the returns from the Seal Sale should be large enough to finance this extra expense.

As we have seen, Virginia still has annually over 2,500 deaths from tuberculosis, while her death rate from this disease is well over that of the United States as a whole. The State Health Department while doing valuable work has found that it can not take care of the whole work in the State, and the local health authorities, as a whole, are not appreciating the call that tuberculosis should make upon

them. There is thus a vast amount of work left undone which can be largely accomplished by voluntary effort. The State Tuberculosis Association has, therefore, the plain duty, first, of forming local societies in the cities and counties, and then of furnishing them advice and help in handling their local tuberculosis problems. Such a program does not interfere with the program of the State Health Department, but should be welcomed because the Association will take up that part of the work which it is impossible for one central organization to care for.

Bank of Commerce Building.

ABSCESS OF LUNG FOLLOWING TONSILLECTOMY.*

By J. W. DEVINE, M. D., Lynchburg, Va.

General interest in lung abscess dates back to 1912 when Richardson first reported lung abscess following tonsillectomy. It is now conceded that 50 per cent of the cases follow operations on the upper air passages and 75 per cent follow tonsillectomies. Lord reports ninety-eight cases of lung abscess following 227 operations on the upper air passages. In Hedblom's series of 692 cases 21 per cent were post-operative, while of these forty-eight followed tonsillectomies. Dr. Moore, in a statistical study of approximately 450,000 tonsillectomies, finds its occurrence about 1 in 2,500.

CAUSE

Abscess of the lung may be produced by aspiration, by means of blood stream, lymph channels, or by extension from neighboring structures. As the above statistics show, lung abscess is often preceded by operation on the upper air passages; tonsillectomy first, and then, in point of frequency, in the order named, operations about the mouth for cancer of the jaw, lips or tongue, and incision of peritonsillar abscess. Next in frequency is bronchopneumonia and occasionally lobar pneumonia, then septic infection following pyemia when a septic thrombus is set free in the venous circulation.

LOCATION

In 60 per cent of the reported cases by W. F. Moore, abscess was found in the right or left lower lobe, right lower lobe 41 per cent,

*Read at the meeting of the South Piedmont Medical Society in South Boston, Va., November 17, 1926.

and left lower lobe 19 per cent. Attention is called by Wyman Whittemore to an important fact in the frequency of abscess occurring in the periphery of the lung. Of thirty autopsies at the Massachusetts General Hospital, twenty-eight were found in the periphery. Another



Antero-posterior view shows large cavity only.

important surgical point is that the visceral and parietal pleura are adherent adjacent to the abscess, making it unnecessary to use differential pressure; but it is almost impossible to be certain that adhesions have taken place. If you feel that they have not, then differential pressure anaesthesia or two stage operation should always be done.

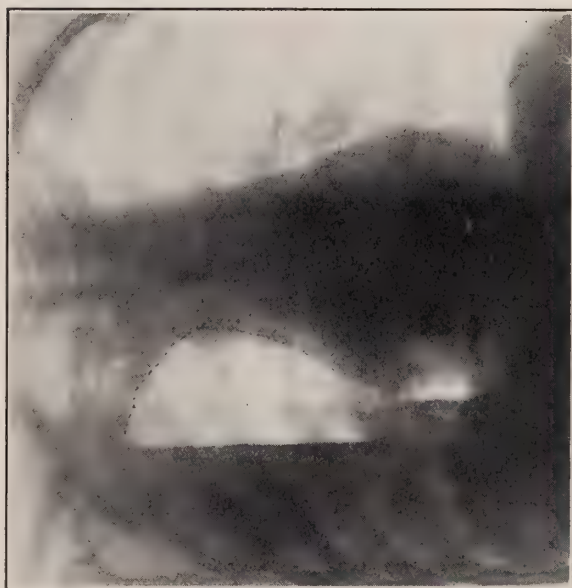
Diagnosis must be differentiated from localized bronchiectasis, pneumonia, pulmonary embolism, encapsulated empyema, tuberculosis, and broken down malignant disease. This is accomplished by means of history, sputum examination, X-ray and physical findings. As Willy Meyer has said, "The roentgenologist is the thoracic surgeon's best friend", and there is no doubt in the case reported here that the location of the abscess by Dr. H. B. Spencer was indispensable in this case.

Treatment consists of adequate drainage of the cavity and dilated bronchioles. We have at our disposal postural drainage, bronchoscopic aspiration, the production of artificial pneumothorax and external drainage by thoracotomy. As to which of these we shall use depends upon the general condition of the pa-

tient, acute or chronic, and the location of the abscess. Postural drainage is done by inverting the patient completely with head hanging straight down to the floor, or by elevating the foot of the bed and changing the position of the patient from side to side. When there is communication with a bronchus, this may completely drain the abscess. The best position can be decided by ascertaining in which posture the most pus is expectorated.

Bronchoscopy should be used only by one skilled in the use of this method. As Drs. Miller and Lambert in a recent paper (*American Journal of Medical Sciences*, January, 1926) point out the discomfort and danger of this method in cases not properly selected, they do not favor bronchoscopy in abscess situated near the periphery of the lungs, and in those not communicating with a bronchus, but find it indicated in abscess near the main bronchi, especially in the lower lobe.

Artificial pneumothorax is a method in which drainage is attempted by pressure, but the danger of rupture of the pleura with a resulting acute septic empyema must be remembered. I do not feel that this is a very safe or satisfactory method.



This view (lateral position) shows fluid level in two pockets.

Thoracotomy is a method probably more applicable to the largest number of cases, and consists of resecting two or more ribs and walling off the pleura by the two stage operation under local anaesthesia. By this method

we are still confronted with the danger of a persistent bronchial fistula. Drs. Miller and Lambert in a large number of cases, after trying all other methods, found it necessary to operate on from 40 to 50 per cent of their cases. Their mortality in this series of cases following operation was 20 per cent.



Lateral view after postural treatment shows fluid in smaller cavity at lower level. Upper large cavity level same as before.

When rubber drainage tubes are used to drain these cavities, the position of the tube should be frequently changed, as there is grave danger of injury to the delicate blood vessels in the lung tissue, with resulting post-operative hemorrhage.

The writer wishes to present the following report of cases:

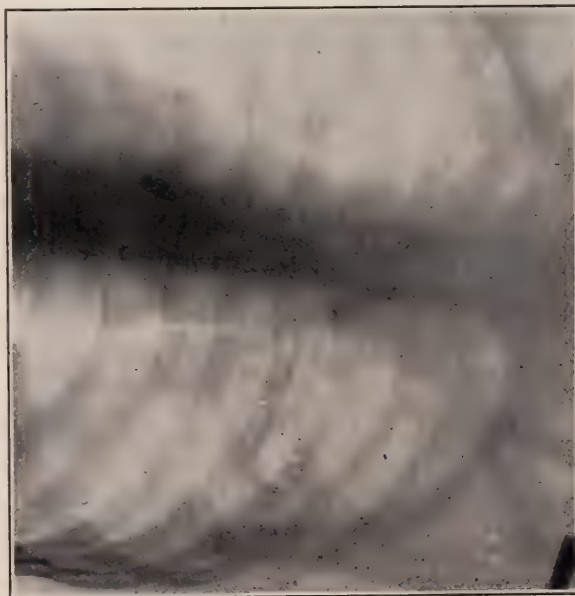
Case 1.—This patient was a child and the abscess was situated near the periphery. The fluid level of the abscess was determined, which made it an ideal case for thoracotomy. X-ray showed two distinct abscess cavities, a small one and a large one. The small cavity was in communication with a bronchus, and was very well drained by posture. The large cavity did not seem to be in communication with a bronchus. These facts were ascertained by putting the patient in different postures and making X-ray films. This is illustrated by the accompanying prints. As the patient was very septic and losing ground, operation was indicated.

Operation was performed three weeks after

the patient was brought to the hospital. Physical examination and diagnosis were made by Dr. F. M. Perrow. Thoracotomy was done under local anaesthesia with resection of about one and one-half inches of the fifth rib in the anterior axillary space. Two layers of the pleura were sutured over a circular area, and gauze was packed against the pleura for forty-eight hours; then needle was inserted into abscess cavity under the fluoroscope and cavity opened and drained.

Case 2.—Patient, girl, age six, with abscess of lung following tonsillectomy. This case was referred by Dr. Sam Wilson, of Lynchburg.

Case 3.—Patient, boy, age ten. This patient had been operated on for empyema about two years previous to my seeing him. Following that operation, his mother gave history of a sinus that continued to drain. The day I saw the patient, he had coughed up considerable blood and pus. X-ray showed a piece of rubber drainage tube which had sloughed into the lung and was in communication with one of the large bronchi. After removal of tube, the bronchial fistula finally healed. The child is now in good health.



Shows both cavities much reduced in size and practically empty.

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610 Church Street.

ANGINA PECTORIS AND CARDIAC INFARCTION.

By J. MORRISON HUTCHESON, M. D., Richmond, Va.

In 1778, Edward Jenner, in a letter to William Heberden, called attention to having found coronary sclerosis and thrombosis in the postmortem examination of the hearts of two patients who had suffered from angina, and suggested that "it is possible that all the symptoms may arise from this one circumstance." Notwithstanding numerous and vigorous attempts to explain angina in other ways, the idea of a coronary basis has survived and the remark of Jenner just quoted expresses the attitude of a large number of clinicians today. It is, of course, agreed that symptoms of angina may and do occur without demonstrable vascular changes in the heart and that such changes are often seen in the hearts of those who never had pain. However, in the majority of patients who during life suffer from angina, the coronaries show definite pathology, and in many of these acute coronary occlusion with its clinical resemblance to angina has occurred. It is difficult, therefore, to escape the conclusion that, in a study of the individual case with angina, the pathological possibility of most importance is disease of the coronary arteries.

In comparatively recent years attention has been called to the rather characteristic clinical manifestations that accompany sudden obstruction of a main coronary or its branch. Most of these cases have been previously classified as angina. Coronary thrombosis was described by Jenner and has long been recognized at autopsy, but not until recently has any attempt been made to differentiate it clinically from the large group of cardiac cases with pain as an important symptom. That coronary thrombosis with resulting infarction can be diagnosed during life with a

considerable degree of accuracy is now certain, and the ability to make this diagnosis represents a distinct advance in our knowledge of cardiac disease. While exact methods of observation and certain experimental studies have facilitated this forward step, it has resulted mainly from patient and thorough consideration of clinical data in their relation to postmortem findings.

Cardiac infarction is frequently the terminal event in patients who have suffered from angina or it may occur with little or no previous history of symptoms referable to the heart. The majority of attacks are fatal, though a considerable number recover. Of seventy cases observed by Christian, forty-five died in the attack and twenty-five recovered. The condition is usually the result of arteriosclerosis and so it may be expected in the later decades of life. It is comparatively easy of recognition if its salient features are kept in mind, and can usually be diagnosed without the aid of instruments of precision.

As in angina, the outstanding symptom in cardiac infarction is pain, though examples of both conditions are found in which pain is absent or insignificant. The pain of infarction may have the same distribution as angina but is more severe, more prolonged and not influenced by rest or nitrites. It is frequently confined to a location beneath the ensiform or in the epigastrium, and may be described as a sensation of terrific gastric distention. Dyspnea in infarction is an almost constant symptom and one of great significance. The slightest effort causes obvious air hunger out of all proportion to changes found in the lung.

The physical examination in angina shows nothing characteristic. In infarction there are usually signs of acute heart failure, rapid feeble cardiac action, weak first sound, falling blood pressure and crackling rales over the lung bases. Abnormal rhythm, particularly fibrillation, may occur. A transient pericardial friction is diagnostic but not often heard. Systolic murmurs are common but of no significance. Soon after infarction takes place, definite fever and leucocytosis are apt to be present.

In differentiating cardiac infarction from angina due to other causes, the electrocardiogram is of great assistance. Unfortunately, it is not often easily available and if obtaining a record means disturbing the patient should be omitted. Changes in the ventricular com-

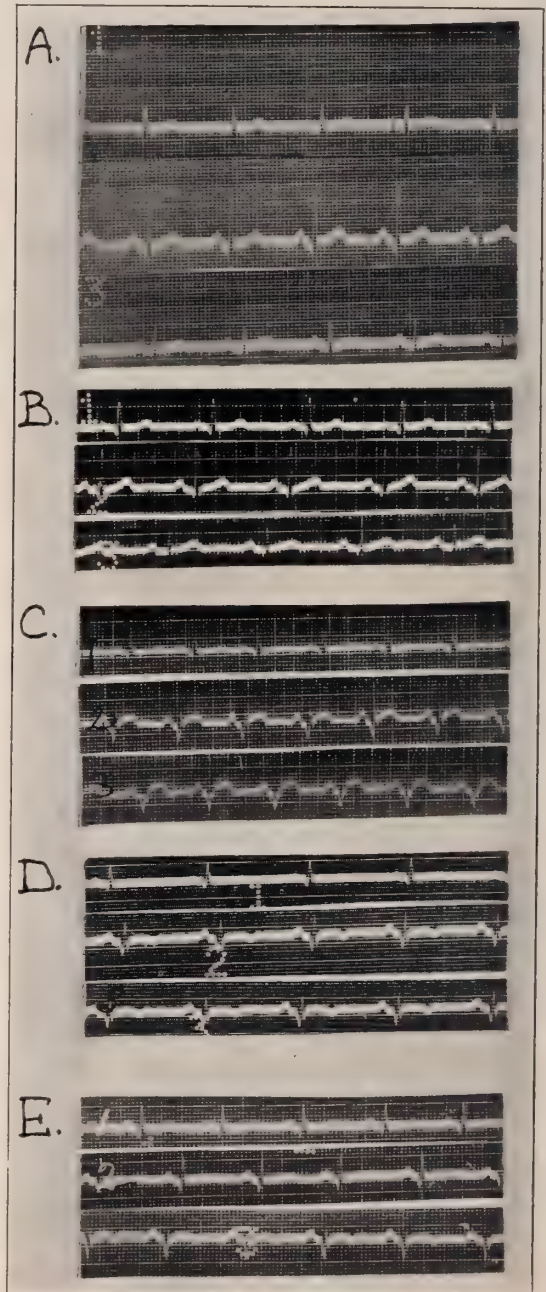
plexes are at times almost pathognomonic of infarction, and when previous records are at hand for comparison even very slight changes may be significant. As an abnormal ventricular complex is produced by a diseased area sufficiently large and so located as to disturb the normal conduction pathway, it is conceivable that infarction may take place without causing electrocardiographic changes. It should be remembered, too, that abnormalities in the curve caused by infarction are greatest soon after the accident occurs and that subsequently the record may become almost or entirely normal.

Perhaps the most unfortunate error that can arise in cardiac infarction is mistaking it for acute indigestion or for some lesion in the upper abdomen requiring emergency surgery, as the ensuing treatment is apt to dissipate the already small chance for recovery. Unquestionably such mistakes have been frequently made and have often gone unrecognized as the symptoms and signs of infarction have not heretofore been generally appreciated. The accompanying fever and leucocytosis have been particularly misleading, as they have been thought to argue for abdominal rather than cardiac disease.

Since the operation of cervical sympathectomy has come into vogue for the relief of angina, it is of additional importance that coronary thrombosis or infarction be recognized. Sympathectomy is of undoubted value in certain patients with severe and disabling pain but it does not prevent thrombosis nor is it a safe procedure in hearts already the site of infarction. As infarction is always a possibility in patients who have had angina, the accident may happen after sympathectomy, but the recognition of this type of pathology beforehand will prevent useless surgery and reduce operative mortality. It has been argued that the relief of pain by sympathectomy and consequent increase in the patient's activities may predispose to coronary accidents, and there is some ground for this view. On the other hand, if operation be undertaken where it is properly indicated, only for severe pain, the relief secured from the physical and mental stress of the attacks will in most instances more than offset the danger incident to increased activity.

As a considerable number of patients who suffer a cardiac infarct survive and may attain relatively good myocardial function, it is of

the utmost importance that every assistance be given the heart during the critical period of impaired circulation. A proper understanding of what has happened is the first and most significant step in treatment. Seeing that the circulation has been cut off from a



A. November, 1924, prior to sympathectomy.
 B. May, 1925, after sympathectomy. This and previous curve are entirely normal.
 C. November 2, 1926, fourth day after infarction. Note marked changes in whole ventricular complexes.
 D. December 16th—Change toward normal.
 E. December 30th—Further change toward normal.

portion of heart muscle and that cardiac work must be carried on by the portion remaining, it is essential that the demands for work be reduced to a minimum. This is best accomplished by absolute rest with morphine in sufficient quantity to relieve pain. Cardiac drugs are of doubtful advantage. It has been stated that both nitroglycerin and digitalis are contraindicated, but opinion on the latter is divided. Christian prefers caffeine, but advocates great conservatism in the use of the "so-called cardio-circulatory stimulants."

Coronary thrombosis with infarction accompanied by clinical signs sufficiently distinctive to permit of its recognition is a rather common occurrence. In the past three years I have seen twenty-seven cases whose clinical manifestations pointed definitely to this condition. During the same period I have seen infarction twice postmortem in hearts that had given no characteristic evidence in life of its presence; but in both instances it might well have been suspected from the sudden onset of heart failure, in one case with auricular fibrillation.

In fourteen of the twenty-seven cases of infarction observed, electrocardiograms were obtained and all showed significant changes in the ventricular complexes, varying from a bundle branch block to inversion of the T-wave in leads one or two or both.

Of the twenty-seven cases, seventeen died in or soon after the attack, and ten recovered. In all cases followed, there has been an apparent lessening of cardiac reserve following recovery from infarction. One case in particular I have chosen to review in some detail as it illustrates most of the points touched on in what has been said regarding angina and infarction and also emphasizes the relationship of the two conditions.

A man, aged fifty-five, was referred to Dr. Coleman for sympathectomy in April, 1925. He had been under my care since 1921, having begun to have mild attacks of typical angina about 1919, following an operation on the prostate with resulting bladder infection. The latter condition cleared up entirely on treatment, but the attacks of angina continued and in 1924 became more frequent and more severe. There was a poor response to exercise but the heart was negative to physical examination and the blood pressure normal. In 1921 the orthodiagram showed nothing abnormal in the heart or aorta, but, as time went on, there was

some increase in the size of the heart shadow. The electrocardiogram was always essentially normal. Early in 1925 a month's rest was advised, but this gave very little relief. Pain would occur on the slightest exertion and occasionally at night, and, as only temporary relief could be obtained from nitrites and other remedies, work had to be abandoned entirely.

Relief following operation was striking. Regular duty was resumed ten days later and there has been no return of the precordial pain radiating to left shoulder and arm. Occasional gastric distention with tightness in the chest was noticed, but this was relieved by rest or nitrites. The response to exercise as measured by the degree of dyspnea was apparently better than before operation.

On October 29, 1926, at 3:00 A. M., he was awakened from sleep by a severe pain in the pit of the stomach. This was described as a sensation of tremendous distention worse than anything previously experienced and accompanied by nausea, shortness of breath and weakness. Nitrites gave no relief and morphine very little. When he arrived at the Johnston-Willis Hospital about 5:00 P. M., the pain was still agonizing and he appeared extremely ill. The skin was grayish, rather than cyanotic, the breathing rapid, becoming difficult on the least exertion. The pulse was 108, blood pressure 104/80 as compared with 136/92 a month previously. The heart sounds were feeble, but no murmur or friction was detected. Fairly numerous cracking rales were heard over the lung bases; the liver appeared somewhat enlarged and tender. The temperature on admission was 98, but the following morning it had risen to 101, with a leucocyte count of 16,300. A hypodermic of morphine, grain $\frac{1}{4}$, and atropine, grain $\frac{1}{150}$, was given as soon as the patient was seen, and the morphine repeated within an hour. Following this, the pain gradually disappeared and did not return. By the fifth day the temperature was normal and leucocytes 9,000. A plan of absolute rest was instituted and kept up until signs of congestion in lungs and liver had disappeared. On November 12th, he left the hospital. There has been no further pain, but weakness and shortness of breath on exertion are more noticeable than before the accident.

Electrocardiograms taken at frequent intervals during his last hospital confinement showed some interesting changes. In place of the practically normal curve repeatedly ob-

tained before and after the operation of sympathectomy, profound changes appeared in the ventricular complexes approximating incomplete bundle branch block. This type of record, as pointed out by Pardee and others, is characteristic of infarction. As the infarct healed, the abnormalities in the curve became less pronounced, the last record obtained showing only T-wave inversion.

This patient had typical attacks of angina, induced as a rule by exertion and relieved by rest or nitrites. These occurred with increasing frequency and severity for six years, accompanied by no other evidence of cardiac disease excepting dyspnea on exertion and, during the last three years, a moderate addition to the size of the heart shadow. That the attacks of pain were connected in some way with advancing coronary disease is strongly suggested by later events.

The result of sympathectomy was entirely satisfactory in as much as the operation was followed by a year and a half of much more comfortable existence than for four years previously. The limits of sympathectomy are, however, emphasized by its failure to prevent the coronary accident that later occurred and, also, the pain of agonizing degree that accompanied it. Cardiac infarction in typical form with abdominal pain, acute heart failure, fever and leucocytosis, is shown together with the electrocardiographic changes that accompany this accident.

Professional Building.

METASTATIC UVEITIS.

By V. K. HART, M. D., Statesville, N. C.

From the Department of Head Specialties, Davis Hospital.

The above phrase implies an acute process. Such it is. It lapses, however, into a subacute stage and in some instances into a chronic iridocyclitis.

Uveitis, used correctly, means an inflammatory condition involving the iris, ciliary body and choroid. Therefore, there are synechiae, ciliary injection, choroidal cicatrices, vitreous opacities and deposits on the posterior layer of the cornea (descemetitis).

Inflammation of one or more parts of the uveal tract, originating from a source of infection, such as diseased tonsils or dental pathology, is not an uncommon occurrence. Moreover, an acute or chronic prostatitis, usually gonococcal but not necessarily so, mani-

festes itself often by inflammation of the uveal tract. Syphilis very frequently gives rise to an acute iritis.

All the above are well known facts to eye men and most clinicians. Why, then, are the following cases presented? First, because all evidently originated in diseased tonsils or teeth. Second, because *every one presented a descemetitis as part of the uveitis.*

Objectively, the following positive findings were noted in every case: 1. Deep and pronounced ciliary injection. 2. A classical descemetitis—(punctate deposits on the posterior layer of the cornea, triangular in shape, apex upward, and involving largely the lower cornea). 3. One or more posterior synechiae. 4. Vitreous changes except in case five.

The first two cases showed scar tissue formation in the retina of the affected eye. If it was present in Cases 3 and 4, it could not be demonstrated because the retina could not be clearly seen.

These negative objective findings were recorded in each case: 1. Normal ocular tension. 2. No disturbance of nervous innervation. 3. Absence of diseased retinal vessels—(as far as could be determined in those cases with many vitreous opacities). 4. A negative physical examination except for bad teeth, or diseased tonsils. (Such included an investigation of the sinuses.) Other exceptions were an arthritis in Case 1 and a mitral valve lesion in Case 4. 5. A negative Wassermann. 6. Absence of gonorrheal history or findings.

When the tuberculin test is mentioned, the subcutaneous use is meant. One-tenth mg. was the first dose, and such was increased on alternate days until a dosage of 5 mg. was reached. If, in the interim, a severe systemic reaction occurred, its use was discontinued.

Case 1. Female, age fifty-six years. Emmetropic eyes by retinoscopy. O. D. acc. sph. plus .25 equals 20/20; O. S. light perception only. Presbyopic. The vitreous changes left were those described as "synchysis scintillans." Circumscribed area of scar tissue to nasal side right nerve. Apparently some such areas in left retina and occasional circumscribed pigmentation.

The outstanding feature of her physical examination was an arthritis of the chronic infectious type and some bad teeth. She had small, atrophic, imbedded tonsils of questionable pathology.

Her tonsils were therefore removed and she was put under a dentist's care. This was two and one-half years ago. Despite two follow-up letters, the patient has not been seen since. Her arthritis improved immediately following the above treatment, and the ciliary injection cleared.

Case 2. Female, age seventeen years. Retinoscopy: right, shadow unsatisfactory (vitreous changes); left moderate hyperopia. O. D. count fingers five feet; O. S. acc. sph. plus 1.00 equals 20/20 (mydriatic). The left retina showed an old, choroidal cicatrix in the lower outer quadrant and there were slight vitreous changes left. A tuberculin test was negative systemically and focally.

A diseased pair of tonsils were therefore removed. A dentist gave the teeth a clean bill of health. In six weeks the ciliary injection had cleared.

In one year her vision with correction was O. D. 20/20 minus 1; O. S. 20/20. This represents a definite improvement.

Case 3. Male, age twenty-one years. Retinoscopy showed a moderate, compound, hyperopic astigmatism O. D. acc. sph. plus .75 cyl. plus .25 @ 180 equals 20/70. O. S. acc. sph. plus 1.25 cyl. plus .25 @ 90 equals 20/20 (mydriatic). The vitreous changes were limited to the right eye.

Therefore, a diseased pair of tonsils were removed. He was referred for dental advice, but no outstanding trouble was found.

At the end of eighteen months there is still slight ciliary injection. O. D. count fingers at three feet; O. S. 20/20 with correction.

Because of his chronic iridocyclitis, which has recently given rise to lenticular changes, a tuberculin test was done. It was discontinued after the administration of one mg. because of a severe systemic reaction (temperature 102). However, there were no definite changes in the eye (increased ciliary reaction, pain, intraocular hemorrhages, etc.) The latter (focal changes) are of the utmost importance in diagnosis. The former (systemic reaction) is of little value. The writer has obtained in a robust nurse a very severe systemic reaction after one-half mg. Therefore, the test was considered negative.

Case 4. Male, age twenty-nine years. No gross refractive error. Right vitreous hazy but no definite opacities. O. D. 20/70; O. S. 20/20.

The tonsils were small and atrophic but their removal was advised because of a rheumatic history and a mitral valve lesion. Patient refused operation. Dental advice was directed because of several suspicious teeth.

The eye very materially improved after local treatment and dental care. The patient disappeared after two months of treatment and has not been heard from for a year.

Case 5. Female, age twenty-eight years. By retinoscopy, a bilateral, compound, hyperopic astigmatism of moderate degree was noted. O. D. ac. sph. plus 1.75 cyl. plus .75 @ 90 equals 20/30 plus; O. S. sph. plus 2.00 cyl. plus .25 @ 90 equals 20/20 (mydriatic). There were no vitreous changes in the affected eye (right). Retinal lesions were absent.

During the acute stage of the right eye, the patient had a subacute tonsillitis. Operation was, of course, advised, particularly because there was no apparent dental pathology. Operation was refused.

Under local treatment the eye cleared in three weeks. The proper glasses were fitted and the patient discharged. She has not been seen in over a year.

DISCUSSION

During the same period of time a number of cases of luetic iritis were observed. Also several cases of scleritis or episcleritis of focal origin came under observation. A number of cases of iridocyclitis incidental to trauma or foreign body have also been observed, a few complicating some ophthalmic surgical procedure.

In very few of these, however, was there a descemetitis of any degree, though DeSchweinitz says it occurs in some form in all cases of iridocyclitis. When present, it was not in the triangular shape before mentioned, or so definitely punctate. It suggests the actual presence of organisms in the cornea and, therefore, a true metastasis in contradistinction to a toxemia *per se*. Of course, with every infection, there is some toxemia.

Proper local and general therapeutic measures were instituted in each case. The discussion of the same is not pertinent.

SUMMARY

1. All cases in addition to the usual signs of inflammation of the uveal tract showed triangular punctate keratitis (descemetitis).

2. Cases 1 and 2 showed retinal changes.
3. Cases 1 and 2 recovered after removal of tonsils and dental attention. Case 3 lapsed into a chronic state despite such care. Case 4 recovered with dental attention only. Case 5 recovered with neither removal of tonsils nor dental care.
4. Venereal and tubercular findings were absent in all cases.

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MYXEDEMA: THYROID INSUFFICIENCY SYNDROMES.

Report of a Far Advanced Case, Presenting Most Conspicuously Gastric Symptoms.*

By EUGENE L. LOWENBERG, B. S., M. D., Norfolk, Va.

William Gull¹ in 1873 called attention to a disease with a distinctive group of symptoms, which later became known as myxedema. In spite of great interest in the disease since Gull's article, and the accumulation of a vast amount of literature, cases of myxedema continue to be more frequently unrecognized than recognized and allowed to go from place to place in search of help, in many instances treated for such conditions as "anemia" or "nephritis." This fact may possibly be explained by the relative infrequency with which the average practitioner encounters the disease.

A typical case of myxedema is unmistakable, providing the condition enters the physician's mind as he makes the routine examination of the patient. Ord's² description, as given by Osler, is classical. There is a marked increase in the general bulk of the body, a firm, inelastic swelling of the skin, which does not pit on pressure; dryness and roughness which tends, with the swelling, to obliterate in the face the lines of expression; imperfect nutrition of the hair, local tumefaction of the skin and subcutaneous tissues. Perspiration is often much decreased. The physiognomy is altered in a

remarkable way. The features are coarse and broad, the lips thick, the nostrils broad and thick, and the mouth is enlarged. Over the cheeks, and sometimes the nose, there is a reddish patch. There is striking slowness of thought and action. The memory becomes defective, the patient grows irritable and suspicious. There may be headaches and constipation. In some instances there are delusions and hallucinations. The gait is heavy and slow. The temperature may be below normal. The patients often suffer in cold weather. Albuminuria is usually present; the thyroid gland is diminished in size; the basal metabolism is reduced 20 to 40 per cent below normal.

Osler says "the diagnosis of myxedema is easy as a rule." This assuredly is true if the condition occurs to the mind, but in every series of cases reported in the literature of late, a large percentage had been seen by physicians and had gone undiagnosed for years. The general aspect of the patient suggests nephritis, or pernicious anemia, but the solid character of the swelling, the excessive dryness of the skin, the low temperature, the loss of hair, the dull, listless mental state, the low basal metabolism, the usual normal kidney function test serve to differentiate the former; while the absence of increased urobilin in the urine, glossitis, and of embryonal red cells in the blood picture rule out the latter. The chronic nephrosis of Epstein, to be mentioned later, is apparently closely allied to myxedema. The most important single factor in the diagnosis of myxedema is the low basal metabolic rate. Chaney³ in 1924 pointed out that in cases of myxedema the tendon reflexes produce such slow movements that this quality can be recognized without the aid of mechanical devices, and that similarly a greater stimulation is necessary to elicit a tendon reflex in a myxedema patient than in a normal person. Thacker and White⁴ in a recent article report fourteen cases of myxedema showing a characteristic electrocardiogram. There was a consistently low T wave in lead 2, and a general decrease in potential of all electrocardiographic deflections in all leads. According to these authors this "low potential" is found in one other condition—that of myocardial exhaustion due to serious coronary sclerosis. The inference is that the heart action is sluggish in myxedema. Thacker and White felt that there is a distinct parallelism between the

*Read before the Norfolk County Medical Society, November 15, 1926.

T wave of the electrocardiogram and the basal metabolic rate in hypothyroidism.

Though the classic picture of myxedema may be readily recognized, the literature of the past few years describes many cases of hypothyroidism with less characteristic symptoms and signs—cases suspected and diagnosed with greater difficulty. These cases may be divided into three groups:

1. Cases presenting most conspicuously a severe anemia.

2. A less definite clinical type characterized by fatigability, hypotension, pains and neuroses of various forms.

3. The chronic nephrosis of Epstein.

Of the first group, Unverricht⁵ in 1923 mentions a group of anemias with, clinically, only presumptive symptoms of hypofunction of the thyroid, in which the erythrocyte counts were from 3,030,000 to 3,780,000, and the hemoglobin from 48 to 56 per cent. He reports an improvement in blood count on thyroidin treatment. Baker⁶ in 1924 and Warfield and Green⁷ in 1925 report cases showing a relation between thyroid deficiency and an anemia resembling chlorosis.

In a very recent paper Mackenzie⁸ reports three cases, the outstanding feature of each of which was a severe anemia, the cases being diagnosed as pernicious anemia until the basal metabolic rate and the urobilin excretion were determined. The most conspicuous symptoms in these cases were weakness, sensitiveness to cold, decreased perspiration, paraesthesia and coldness of the hands and feet, palpitation and dyspnea on slight exertion. Two of the cases had only slight characteristics of myxedema. One of these cases showed an absence of free hydrochloric acid in the stomach contents. All three cases recovered under thyroid therapy. It is evident, therefore, that a pronounced anemia, either chlorotic in type or suggestive of pernicious anemia may be present in myxedema, while the usual characteristics of myxedema itself may be wanting.

Of the second group, Lawrence⁹ in 1925 mentions thirty patients seen in the Evans Memorial Hospital Clinic, none of which had the features usually associated with myxedema, but in whom the laboratory findings were identical with those of myxedema, and the results of treatment with thyroid so striking as to leave no doubt as to the etiology of the cases. These cases were characterized by symptoms of fatigability, irritability, depression,

bradycardia, subnormal temperature, hypotension, lymphocytosis. The author warns, however, that such cases are not to be diagnosed and treated as thyroid insufficiency unless the basal metabolic rate is definitely confirmatory, and then only under careful observation.

Higgins¹⁰ in the same year reports twenty-five cases of incipient hypothyroidism presenting an indefinite clinical picture—moderate dryness of hair and skin, neuroses of various types, vague unclassified pains. The author expresses the view that this type of incipient hypothyroidism occurs most frequently near the menopause, and bears some relation to ovarian activity.

I mentioned above that a possible third type of hypofunction of the thyroid, recently described in the literature, is the chronic nephrosis of Epstein. Epstein^{11, 12, 13} in 1917 called attention to cases presenting certain clinical features in common with chronic parenchymatous nephritis, but showing a great hypercholesteremia, a low metabolic rate, a reduction in blood proteins with an increase of the serum globulin as compared with the serum albumin. In the normal serum the ratio of the albumin to the globulin is 2:1, while in nephrosis the ratio is so changed that there may be more globulin than albumin. The blood cholesterol, normally 175 mmg. to 100 mmg. per 100 c.c., may be as high as 1,300 mmg., the lipemia causing the blood to look quite milky. These cases, rare and usually in young people, complain of headache, dyspnea, vomiting. They show marked pallor, marked edema, urine diminished in amount, of high specific gravity and with large amount of albumin. But the blood pressure is low, and the chief changes in the blood chemistry are a very high cholesterol content, a low protein content, with inversion of the albumin globulin ratio. The blood urea nitrogen, creatinine, uric acid and chlorides are usually practically normal. The marked edema of these cases, Epstein explains on a basis of changed osmotic conditions, the reduction in the serum protein reducing the osmotic pressure of the blood below that of the tissues. He thus treats his cases with a very high protein, low carbohydrate, low fat diet, with excellent results in some cases. In 1920 the same author reports cases of nephrosis having myxedematous characteristics. The edema in such cases disappeared on high protein diet, and the myxedema characteristics cleared up on thyroid therapy. In 1922 Epstein presents

his final conception of nephrosis, not as an essentially renal disease, but rather as a systemic disorder of metabolism associated with a relative insufficiency of the thyroid. The thyroid functions in these cases, but there seems to be an unusual demand made upon it due to the high blood cholesterol, so that there is a relative insufficiency of its hormone. In nephrosis cases with myxedema features Epstein uses high protein diet with thyroid extract and likewise in the simple nephrosis cases, when good results are not obtained with high protein therapy alone he resorts to thyroid therapy with good results. The amount of thyroid used in his cases is often far greater than in the simple myxedema cases. Thus he starts out with one-half to one grain three times a day, increasing the dose in many instances rapidly to 15 grains a day—or even 30 grains a day for six or seven days. For nephrosis Epstein would substitute the name “diabetes albuminuricus”, implying a perversion of the protein metabolism related to thyroid insufficiency, somewhat after the manner that diabetes mellitus is a perversion of carbohydrate metabolism related to pancreatic insufficiency.

Thus has much evidence been adduced that the Epstein nephrosis is a form of thyroid insufficiency, and that nephrosis and myxedema are closely allied, the latter being frequently superimposed upon the former. Two cases of adolescent myxedema accompanied by nephrosis were recently reported by Davidson¹⁴; and Marsh¹⁵ in the current year reports ascites in a myxedema patient clearing up with thyroid therapy.

A fourth group of hypothyroid cases recently reported might well be added for the sake of completeness, though most assuredly they are far removed from actual myxedema. These are the simple adolescent goiters. Plummer¹⁶ in 1925 reported that the basal metabolic rate of patients having diffuse colloid goiters of adolescence is, in the majority of cases, below normal. In many such cases, instead of using iodine, he prefers to give small doses of thyroid extract, carefully controlled by metabolism tests. Iodine helps these cases by enabling the gland to produce more thyroïdin, while thyroid extract offers replacement therapy, allowing the gland to rest.

The treatment of myxedema dates back thirty-five years, when Dr. George Murray¹⁷ gave to the world a specific remedy, the administration of thyroid extract of sheep. In re-

cent years, much has been done to standardize the method of treatment—to point out the difficulties and complications. In 1925 Sturgis and Whiting¹⁸ of the Medical Clinic of the Peter Bent Brigham Hospital of Boston reported twenty-six cases, with special reference to the treatment and prognosis. Treatment in this series was controlled by—1st, the clinical response of the patient; 2nd, the basal metabolism; 3rd, the early morning resting pulse rate; 4th, the temperature; 5th, the body weight. In home treatment, in the absence of basal metabolism estimations, a careful determination of the resting pulse was considered as giving an accurate idea of the basal metabolism in most cases. Palpitation, dyspnea, excessive warmth, dizziness, nausea, undue acceleration of the pulse or elevation of the temperature were taken as indicative of over-dosage. The therapy was divided into two stages:

1. The initial dosage, calculated to restore the patient to a normal level of metabolism.

2. The maintenance dosage, or smallest amount necessary to keep the metabolism within normal limits.

The average initial dose was grs. 2, t.i.d. for five to ten days; the average maintenance was grs. 2 q.d., though this varied from grs. 1 q.d. to grs. 3. These authors point out how extremely hazardous the administration of thyroid extract can be in certain cases. The chief complications center around the heart, the kidneys and the blood. The heart is frequently dilated, but it has been shown by Fahr¹⁹ that a failing heart in myxedema may respond to thyroid therapy plus digitalis, where digitalis alone is ineffectual. Bowen and Boothby²⁰ have shown that the administration of thyroid in chronic nephritis increases the retention of urea nitrogen. As the majority of myxedematous patients show albumin and casts in the urine, and some show a definite renal insufficiency as shown by functional tests, a rare danger of uremia becomes apparent. The severe anemia present in many cases throws added strain on the heart.

Sturgis and Whiting well point out that before beginning thyroid therapy in a myxedema patient the condition of the heart, kidneys and blood should be carefully ascertained. If the heart is markedly involved the patient should be digitalized first and the thyroid therapy started slowly; if the patient is anemic, one or more transfusions are advisable before beginning specific treatment; if there

is definite renal insufficiency, the thyroid dosage should be small, the diet reduced in protein and the blood urea nitrogen carefully watched.

While most cases suffering from myxedema can be restored to normal health, cardiac failure or uremia may cause a fatal termination. Serious mental changes may persist after the myxedematous condition is relieved. Only rarely has a case remained spontaneously cured after withdrawal of the thyroid therapy altogether, and such cases are to be accepted with skepticism.

CASE REPORT

M. R., female, aged 56, twice married, was first seen July 31, 1926, recovering from what was described as a fainting attack while she was attempting to go from her bed to the bathroom.

Past History.—In childhood the patient had measles, whooping cough, chicken-pox and malaria. At the age of twenty-three she had a dilatation of the cervix for dysmenorrhea. Her general health was good until twenty-six years ago, when, at thirty years of age, an attack of influenza kept her in bed several weeks. From this time on she was always sickly—catching colds frequently, tiring easily, suffering from gastric upsets, menstruating sparsely and very irregularly. Twenty years ago, at the age of thirty-six, she had “peritonitis” following a miscarriage, but got well without an operation. Menstruation ceased about eighteen years ago, when the patient was thirty-eight years of age. She has two children, one aged twenty-seven and the other thirty-two, both by her first husband.

Family History.—The patient’s father died of “anemia”, though just what type I do not know. The mother died with “stomach trouble.”

Present Illness.—This seems to date back to nine years ago, when, at the age of forty-seven, after a second mild attack of influenza, the patient’s digestive disturbances became worse, and a gradual change in her voice and general appearance was noticed, first by her friends, and later by the patient herself. Always quite a talker, and possessed of a clear, somewhat high pitched voice, the patient found herself talking deliberately, slowly, and with considerable effort, and even to herself her voice sounded quite changed. Her relatives

said she “dragged her speech”, and friends noted a marked change in her facial expression, and to herself her face looked and felt puffy and swollen. About the same time the hair of the scalp, formerly very thick and fluffy, turned rapidly gray, and gradually became much thinner and coarser. The digestive symptoms, however, still constituted the patient’s chief complaint. There was vomiting of everything eaten, soreness in right upper quadrant, sour eructations, constipation complicated by bleeding hemorrhoids. The patient had become very pale and there was a slight yellow tinge to the skin. A diagnosis of cholecystitis was made, the gall-bladder drained and hemorrhoidectomy performed eight years ago at St. Vincent’s Hospital. I have been unable to locate her record at this time, it being during the war period, when some of the charts were lost. No stones were found, according to the patient, and the gall-bladder was drained without removal. Convalescence was uneventful and for a while the patient was improved. The yellow pallor persisted, the skin was noted to get progressively more dry and coarse. The patient continued to be weak, the change in the facial expression more marked, the voice still slower. The feet and hands were always cold, and the patient noticed that she no longer perspired, even on the hottest days of the summer months. However, fulness after eating, gaseous distention, sour eructations, continued to be the chief cause of the patient’s distress, and were the symptoms for which she continued to consult various physicians for relief. In 1920 a gastro-intestinal X-ray was taken at the Protestant Hospital. A diagnosis of carcinoma of the stomach was made, the plates showing a filling defect near the pylorus, and evidence of obstruction. An exploratory operation was urged, but refused by the patient. During the succeeding two years the stomach symptoms abated slightly under medication and dietary care. On one occasion during this period the patient had quite a hemorrhage from her gums about a decayed tooth. Constipation was becoming more and more marked, and bleeding from hemorrhoids was again noticed.

Four years ago the patient began to suffer intense headaches, blurring of vision, burning and frequency of urination. A diagnosis of cystitis and pyelitis was made and successfully treated, these symptoms disappearing in a few

weeks. For a while the patient again felt much improved.

The last year of this long series of illnesses was marked by a progressively down-hill course. The weight remained about the same, 135 pounds, but the patient grew weaker and weaker. Shortness of breath, palpitation and giddiness were experienced on the slightest exertion. Vision often became blurred and at times there would be actual periods of blindness. The stomach symptoms again became accentuated, the slightest indiscretion in diet causing vomiting. The patient began to faint, at first only once every month or so; later two or three times a month. For two weeks prior to the first time I saw her she had been bed-ridden because of extreme weakness.

I first saw the patient through the courtesy of Dr. C. J. Andrews, who recalled having seen her about six years ago, and who was unable to make the emergency call he received from the patient's husband. The patient had fallen unconscious while trying to walk to the bathroom. I found an elderly woman, almost ghastly in color, reviving from a fainting spell. The pulse was good, and in a few minutes the patient was over her immediate condition. My subsequent investigations were at the incidence of Dr. Andrews, who was kind enough to turn the case over to me. Six days after my first visit, in answer to an urgent call, I found the patient again unconscious on the floor. Again she revived rapidly, but this time a severe diarrhea of two days' duration had still further weakened her, so that she was really in a serious condition. A dose of castor oil followed by tr. opii deod. controlled the diarrhea. Dilute hydrochloric acid was given empirically to control the vomiting, with no success, so an alkaline powder of oil of peppermint, soda bicarbonate, magnesia usta, bismuth subnitrate and extract of belladonna was prescribed with considerable relief. In about a week the patient was somewhat stronger again, and a complete physical examination was done.

Physical Examination.—A fairly well-developed, somewhat undernourished, elderly female, very weak, but comfortably lying in bed. Temperature 96.6; pulse 76, regular and of fair quality; blood pressure 114/70. The scalp hair was gray, thin and coarse. The face seemed unusually large, broad and coarse. There was marked puffy swelling under the eyes and along the temporal region and the rami of the jaw. The skin was rough and

dry, and of a pale yellow tinge. The hands and feet were cold—the tips of the fingers being almost bloodless, pale and pinched. The skin of the wrist and lower arm was definitely scaly. The pubic hair was thin and brownish, while in the arm pits there was no hair at all. Though a hot day in August, there was no perspiration. The patient spoke deliberately, slowly, in a low monotonous drawl, and experienced difficulty in recalling events she was questioned about. The mucous membrane of the lips, gums and pharynx was pale; the tongue was thinly coated, but neither sore nor reddened. The teeth were in good condition, the conjunctivae were not icteric. No thyroid gland could be definitely palpated. The lungs were clear other than a few marginal rales at the bases; the heart was enlarged to the left, the sounds weak, with a blowing non-transmitted murmur over the base and at the apex. The musculature of the abdomen was poor, rendering deep palpation very satisfactory, but no evidence of pathology was noted. There was no tenderness or mass in the epigastrium; the liver and spleen were not detectably enlarged; the kidneys were just palpable. On vaginal examination, the cervix was small, smooth on surface; the uterus normal in size and shape. The knee-jerks were absent. Rectally, extremely large internal and external hemorrhoids were noted. A non-catheterized specimen of urine showed albumen three plus with many pus cells per high-power field. The blood Wassermann was negative.

Diagnosis.—I must confess that the diagnosis was actually "jumped at" in this case, for while taking the history my first impression suddenly clarified itself and the case seemed undoubtedly one of myxedema. The differential diagnosis included chiefly: 1. pernicious anemia; 2. severe chronic nephritis with secondary anemia; 3. malignancy. Abdominal palpation was so unusually satisfactory that it was hard to believe there was a carcinoma of the stomach, in spite of the X-ray findings. Though the patient had gone progressively down hill, weight loss had not been marked, and six years had elapsed. There was much to suggest pernicious anemia, but the tongue was atypical and the blood picture, though suggestive, was not entirely characteristic. The color index was one, the hemoglobin being 60 per cent, the red blood corpuscles 3,000,000. The white blood cells were 8,000, with 64 per cent polys, 36 per cent lymphs.

There was considerable anisocytosis and poikilocytosis, but no blasts, nor even megalocytes were seen. The patient appeared much more anemic than the blood picture indicated. The terminal stage of a chronic nephritis still seemed a likely possibility, especially as a catheterized specimen of urine showed albumen two plus, and 10 to 15 pus cells per high-power field. But the phenolsulphonephthalein test showed an accretion of 50 per cent, so that, as myxedema itself is often accompanied by an albuminuria, the urinary findings still could not be said to disprove the diagnosis. On August 4th, a basal metabolism test, done with the Protestant Hospital machine, recorded a basal metabolic rate of minus 46, and the diagnosis seemed indisputably established.

Treatment and Course.—Four days were spent in digitalizing the patient before any thyroid extract was given. During these four days the basal pulse, taken at 8 A. M., was almost constantly 68, and the temperature 96.6. On August 4th, thyroid extract, grains two, Mulford, was begun and increased two grains each of the next two succeeding days. The first evening of thyroid therapy the patient vomited several times, and during the next two days had random pains in various parts of the body. On the third day she received six grains of thyroid, and that evening, after a brief sensation of fainting, blurring of vision, jumping of heart, she began to feel warm all over—the first time she had felt warm in years. The temperature was 100, pulse rate 95. The pulse was irregular due to occasional extrasystoles. Thyroid was discontinued for twenty-four hours and then started up gradually; gr. 1 the first day, grs. 2 the second and then grs. 2 for one week, during which time the basal pulse did not rise over 78, and the temperature over 91.7. In the next seven days the dosage was gradually increased to grs. 5, when the basal pulse reached 80 and the temperature 97.4. However, on this dosage the pulse would at times during the day get much faster and the patient suffered precordial pains and palpitation. On dropping back to gr. 3 q.d., the temperature fell to 96.6 again, and after several more days of juggling, increasing by a $\frac{1}{4}$ gr. daily, $4\frac{1}{4}$ gr. q.d. was adopted as the proper dosage. This dosage was given daily for twenty days, maintaining an average basal pulse of 78 to 84, and temperature 97.5 to 99.2. The alkaline powder seemed to help the patient's gastric symptoms, and was continued

three times a day after meals. The bleeding from the hemorrhoids was controlled by ox-gall suppositories, and retention enemas of olive oil.

The first encouraging sign other than the return to normal of the temperature and pulse, was acceleration of the voice, noticeably at the end of the first week, and right remarkable to behold. About a week later the face began to smooth out, and by three weeks the myxedematous appearance was entirely gone. A complication hard to alleviate was an almost intolerable itching over all parts of the body. This seemed to be part and parcel of the cutaneous changes; the skin formerly dry,



rough, coarse, becoming moist, soft, and on the fingers even delicate. About the wrist and lower arm the skin peeled off entirely.

On September 19th, after forty days of thyroid therapy, with $4\frac{1}{2}$ grs. a day for the last twenty days, the dosage was increased to grs. 2 q.d. In spite of these clinical signs of improvement, the patient had grown weaker and weaker. The thyroid therapy had caused considerable loss of weight, and an appreciable amount of blood had been lost per rectum. Generally, feeling greatly improved, no longer vomiting, and with voracious appetite, the weakness had progressed to a point where she could not even raise her head to take food without feeling faint. Discouraged, the patient refused thyroid for two days, and the temperature fell to 96.6, pulse 76. After considerable argument, she was prevailed upon to continue to take thyroid, grs. 2 q.d., and to go to the hospital for transfusion.

The patient entered the Protestant Hospital September 22nd. The next day the blood count was, red blood corpuscles 1,800,000; white blood corpuscles, 8,000; hemoglobin 29

per cent; polys 59 per cent; lymphs 39 per cent; transitional 2 per cent; catheterized urine, albumen faint trace—otherwise negative; blood N. P. H. 40.8 mg.; urea N. 20 mg.; sugar 97 mg.; chlorides 39.6 mg.; creatinine 1.23 mg. The blood cholesterol was 168 mg.; stool positive occult blood, negative for parasites.

The patient was given 500 c.c. of blood by direct transfusion. A moderate chill, with temperature of 101, was stood well. The basal metabolism six days later, taken with the same machine as the first time, was minus 19; the gastric analysis showed: total acidity 30, free HCl 17, no blood; and the blood picture showed marked improvement; R. B. C. 3,730,000; Hgb. 53 per cent. The patient left the hospital on the seventh day, still taking tr. digitalis m. 10 q.d., thyroid extract gr. 2 q.d., and an alkaline powder t.i.d. She was much stronger and able to walk a few steps. At home the improvement has continued at a rapid rate. Following the principles laid down by Epstein in his nephrosis cases, and Minot and Murphy in their pernicious anemia cases, a high protein diet of liver, kidney, sweet-breads and steak has been prescribed. This, along with an enormous appetite and an iron tonic, has brought about a steady increase in weight and strength. On September 22nd, when she left the hospital, the patient weighed 118 pounds. On November 11th her weight was 130 pounds, and the blood count showed R. B. C. 4,000,000, with 65 per cent hemoglobin. Though still slightly pale, the patient now looks like a normal individual, walks and talks with alacrity, and does her own house work. After having been bed-ridden so long, it is hard now to make her rest at all; and, peculiarly enough, new, dark hair is appearing which contrasts sharply with the gray. The patient has been told that she must continue to take thyroid the rest of her life. Three and a half months have elapsed since the patient was first seen. She has been in comparative good health for one month.

Comment. — In Sturgis and Whiting's twenty-six cases, there were only three with symptoms dating over nine years. In one case only was the basal metabolism lower than in the case above reported. An attack of influenza seems to have definitely been etiologically related to our case. I have been unable to find any data on pronounced gastric symptoms in myxedema. There was only a slight reduction

in the total and free acid in our case, but the patient did much better on an alkaline powder than on dilute HCl. One of Mackenzie's cases showed an absence of free HCl. As in hyperthyroidism we usually have an achlorhydria, we might reasonably expect a hyperchlorhydria in myxedema. In this case the early morning temperature has seemed to be an excellent index of the basal metabolic rate. Looking back on the case I feel sure that it would have been better to have withheld thyroid therapy until one or more transfusions had been given. I wish to express my thanks to Dr. C. J. Andrews for his kind assistance and advice in the management of this case.

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OBSERVATIONS ON FIFTY SKIN CANCERS AND OTHER CHRONIC SKIN LESIONS SUCCESSFULLY TREATED WITH X-RAY.

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The etiology of malignant neoplasms has not been solved. Any sore or swelling occurring on the lips or tongue or inside the mouth or on any part of the face or body in a man after forty-five years of age should be treated as cancer. A very large proportion of such sores or swellings occurring at this time of life are cancer and, if neglected, are frequently fatal. When moles, warts or other growths on the skin are exposed to constant irritation, they should be immediately rayed, for a large number of them otherwise terminate in cancer. Growths, histologically not cancer but precancerous, are easily cured by proper radiation. A large percentage of the epithelioma lesions treated by me were on the face. These occurred as irregular shaped ulcers, the surfaces of which were also irregular and more or less verrucose in appearance, resembling friable granulation tissue which bled easily. The edges were thick and of a stony hardness, while the secretion was scanty and bloody. There was no pain. A number of them were of the basal cell type of cancer and were located around the eye-lid, in the naso-facial grooves, and other parts of the face. The margins were indurated and of irregular outline. The base was glazed and uneven, exuding a sanguineous viscid secretion. The condition gave a history of having begun as a papule, which became scaly, and later developed into an excoriation covered by a crust.

Where the diagnosis can be made without operation or removal of a section, it is better, even if there is no danger of spreading the disease, for an operation interferes with the treatment by increasing the tenderness and swelling in the neighborhood of the operation.

The method of choice in the treatment of growths of the nose, ears, eyes, lips or any part of the face, is the X-ray. The cosmetic results following successful cure of various lesions of the face are very gratifying, since

there is no pain and the resultant scar is hardly noticeable. It is my custom to use the following technique: I bring the radiation in the diseased area within fourteen days to 100 per cent of an erythema dose by treatment every third day; then I keep it at this saturation point by subsequent fractional dosage for a period of at least three weeks. No positive rules can be laid down that are applicable in all cases of skin cancer.

Some very large cornua of the nose, pigmented moles, several cases of keratosis sennsilis, psoriasis and other skin diseases, were cured by giving mild dosage of X-ray at frequent, regular intervals. All radiation must be carefully measured and cumulative effects calculated; otherwise, there may be insufficient radiation, and treatment fail, or there may be an excessive effect and considerable damage follow.

For lesions on the canthus of the eye, I use the cautery wire and X-ray with excellent results.

CASE REPORTS

Mrs. J. H. D., age sixty-five years. Cornu of nose, conical in shape, 2.5 cm. long. Duration 10 years. The whole growth was crusty, but had a very firm base.

The healthy tissue was protected by lead, leaving an exposed area .5 cm. from base of growth; a marked erythema was produced by giving two milliamperes ten minutes each treatment for three weeks. Cornu dropped off four weeks after treatment was discontinued.

Mrs. B., age seventy. Prickle cell epithelioma on left side of nose, extending half-way over upper eye-lid. Duration ten years. Three milliamperes, five minutes each treatment for two months affected a cure.

Mr. G. L. A., age seventy. Basal cell epithelioma on auricle of ear, duration two years, required large dosages of X-ray to produce erythema, which was maintained by fractional doses for six weeks. Healthy tissue was protected by sheet lead. A large wart on outer edge of ear came off.

Mrs. B., age forty-five. Precancerous sore on lower lip, three years' duration, would suppurate every two weeks and discharge pus, but would not heal. A large deep scab was formed by giving four milliamperes ten minutes, twice a week for four weeks. Scab came off two weeks after treatment was stopped, and the lip was entirely well.

Mrs. M. A. T., age fifty-five. Basal cell epithelioma. One year duration, involving two-thirds of entire nose. No biopsy. Treated, in 1923, by five 100 per cent erythema doses; cured; no return.

Mr. L. H. G., age twenty-five years. Lupus vulgaris; patch two by two and a half inches on side of face. Duration 10 years. Treated 1918; no return.

Mrs. V. A. H., age fifty. Angioma of inner canthus, protruding .5 cm. from eye-lids when closed; attached by a broad base; would bleed easily. Duration two years. Treated with cautery wire and X-ray combined. Cured.

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Analyses, Selections, Etc.

Malaria Treatment of General Paralysis.

Dr. L. L. Williams, Surgeon of the U. S. Public Health Service, located in Virginia as Medical Officer in Charge of Field Investigations of Malaria, made the following abstract from "A Compilation of Abstracts on File in the Division of Venereal Diseases, U. S. Public Health Service, Washington, D. C.," for use in a conference of Virginia health workers. (*Compilation No. 5, January 1, 1927*). We are publishing it as we feel it will be of interest to our readers.

General Paralysis of the Insane was first recognized in 1851 by Willis. In 1798, Haslam described the first undoubted case. As early as 1816 it was noted that apparent cures often followed acute febrile illness. Also, in the Middle Ages, quartan ague (malaria) was supposed to cure epilepsy. Deljado says that in Ancient Peru those with Leishmaniasis went to malarious places for cure.

This most modern of treatment (malarial therapy) seems also to be another recrudescence of ancient lore, for as Gerstman points out, Hippocrates and Galen knew that fevers had a curative effect on psychoses.

General Paralysis was first thought to be mental disturbance, then a psychosis, until it was found that 100 per cent of all patients gave a syphilitic history. Every infectious disease is theoretically curable after discovery of the infecting organism. This is not so in General Paralysis. Specific treatment has proven a failure.

Wagner-Jauregg in 1909 reported success with tuberculin and mercury. Tuberculin every second day to produce recurring fever. He later used typhoid vaccine. These are but imperfect substitutes for infectious diseases by which nature sometimes effects the cure of paresis.

In 1917, he first used tertian malaria as a febrifacient. Of nine cases treated in 1917, three were still doing their normal work in 1921.

It is of interest to note that Rosenblum, in Russia, inoculated a small number of paretics with malaria, and possibly with some other infectious diseases, and reported his good results in 1876. But he feared to admit intentional inoculation and at that time claimed that natural infection had occurred.

Malarial treatment of general paralysis is in general favor in Austria, Germany, England, and America. The French have not taken readily to this measure.

THEORY

The mechanism is unknown. There may be an antagonism between the plasmodium and the spirochete; maybe malarial antibodies are antagonistic to the spirochete of syphilis; maybe fever increases the speed of syphilitic antibody production? The plasmodium of malaria has a predilection for the brain capillaries, perhaps it increases the vessel's permeability to syphilitic antibodies. Another theory is indicated by the fact that the spirochete is paralyzed by slight elevation of temperature whereas leucocytes are stimulated. The more bacteria leucocytes ingest, the greater the production of alexins inimical to the bacterium.

Animal experimentation by Schamberg and Rule has shown that *spirocheta pallida* is very susceptible to moderate elevations of temperature. The organism's thermal death point is 41° C for six hours. If rabbits are given hot baths (4° F. rise in body temp.) for short periods each day for a few days after inoculation, syphilis will not appear.

Very malarious countries conspicuously lack General Paralysis and tabes. Will malaria reduction increase these diseases?

Even if malaria cures the paresis the spinal fluid retains its pleocytosis and the spinal fluid Wassermann is not changed. To clear this up one must give Salvarsan and spinal canal injections of salvarsanized serum.

TECHNIQUE

The greatest difficulty is encountered in transporting viable malaria for inoculation. Malarious blood may be defibrinated, cooled, and packed in sawdust or shipped in a thermos bottle. It may be kept for twenty-four hours at 30° C; has been kept for seventy-five hours.

The usual method of inoculation is to inject 2 or 3 c.c. of blood from a malarious patient, subcutaneously or intramuscularly, into the paretic. Tertian malaria is used (*P. vivax*). Malaria develops in three to ten days. Permit ten to twelve attacks, then give quinine (30 gr. daily for three days) followed by 15 gr. daily for two weeks.

Statistics seem to show of all cases treated with malaria, that about 30 per cent are cured and return to their former usual occupations. Good results are to be expected in early cases, maniacal cases, in cases of simple dementia, in seizure cases and in tabetic cases. Poor results are seen in advanced, senile, and juvenile cases.

Quinine easily controls the induced malaria. We must use only pure strains of benign tertian.

The common experience of a number of workers shows:

- Thirty per cent complete remission.
- Twenty per cent incomplete remission.
- Twenty per cent slight improvement.
- Twenty per cent unchanged.
- Ten per cent dead.

In untreated cases about 10 per cent show remission; the rest die rather soon.

The parasite has been "carried through eighty hosts without resort to the *Anopheles*. James says if inoculation is by infected mosquito that results are better than by injection of malarious blood.

Many authors herein report on their cases of General Paralysis treated with malaria. In all well over 1,500 cases have been carefully studied and reported. Nearly all agree that malaria therapy is the only hopeful treatment and that generally good and lasting results may be expected in favorable cases, that is, early cases and in persons not otherwise debilitated. Many combine arsenic treatment with the malarial, usually following it. Some authorities point out various contradictions, usually advanced heart disease, jaundice, great weakness, and advanced renal involvement.

All state that the course of malaria must be followed by daily blood examination and the

course of the attack terminated if the parasites increase suddenly in numbers. Intensification of paretic symptoms or even coma are not necessarily contraindications.

All seem to find induced malaria very easy to treat, responding promptly to very small doses of quinine continued sometimes for as short as two days and apparently never over two weeks. Relapses seem to be very few.

Other experiments have been tried. Ahls-wede injects an albumin compound which has been split into polypeptids and Amino acids. Fischer uses sodium nucleinate—he reports extremely good results.

Others have variously used vaccines, toxins, and proteins, but without results as good as with malarial therapy. The nearest contender seems to be with another infection, recurrent, which is caused by *spirochaete duttoni*. Recurrent fever needs no treatment being self limited, is not as severe as malaria, *but* does not seem to produce lasting results. Typhus, however, is reported to have cured completely one case of syphilis.

Anyone contemplating the treatment of General Paralysis of the Insane with malarial attacks would do well to read this compilation of articles by 136 authors.

Bibliotheca Obstetrica

Pare.

Paré (Ambroise) [1510-90] Deux livres de chirurgie. I. De la génération de l'homme, et manière d'extraire les enfans hors du ventre de la mère, ensemble ce qu'il faut faire pour la faire mieux, et plus tost accoucher, avec la cure de plusieurs maladies qui luy peuvent survenir. II. Des monstres tant terrestres que marins, avec leurs portraits. Plus un petit traité des plaies faites aux parties nerveuses. 11 p. 1., 619 pp. port. 8° Paris, A, Wechel, 1573.

This is a much more elaborate treatise on obstetrics than the little book that he published in 1550, as is shown not only in the more thorough treatment of the subject matter, but also in the appearance of the book. The 96 double pages (only the right hand pages were numbered) of the "Briefve Collection" included some entirely blank pages, and the text reflected inexperience or careless proof reading. For instance, he spells his fellow barber surgeon's name, Thierry de Héry, with small let-

ters. The "Deux Livres" on the other hand shows evident regard for appearances. Each page is boxed in with a double line above and a single line below and to either side, as was quite common in gift-books of poems a generation ago. The type is very pretty *Italic*, and gives one the impression of carefully executed manuscript. The book is well illustrated with cuts showing the instruments in use at the time. The part on monsters is "embellished with pictures of many strange, hypothetic creatures which emanated from the brain of Aristotle." This part of the work is especially interesting in that it shows the reaction of a



The nearest approach to obstetrical forceps in Paré's time.

practical and scientific mind that is just emerging from the mediaeval sea of ignorance and superstition. Thus, among the causes of monsters, he enumerates the glory of God, His ire, and the activities of demons and devils. He had no doubt but that there were demons in the air, on earth and in man himself. He himself saw a sorcerer, possessed of a devil, do marvelous things in the presence of Charles IX and his nobles. He writes with awe of succubi and incubi, although in the 1585 edition he adds a note that he believes "this cohabitation is imaginery, proceeding from an illusory impression of Satan." Yet he describes two specimens of monstrous births that came under his own observation in a very modern way without any reference to supernatural etiology.

Paré was a very practical man, full of com-

mon sense, and was more impressed by results than he was by the opinions of authorities. In "The Apology and Treatise" in which he replies to Gourmelen's condemnation of his use of ligatures in amputations, while he cites authorities to show that bleeding vessels should be tied, he relies chiefly on re-citing successful cases to prove the correctness of his operation. His zeal in the quest for successful remedies is shown in the puppy fat episode. At Turin he met a surgeon who claimed to have an invaluable remedy for arquebus wounds, and it was two years before he could get from him the secret recipe, which consisted of newborn puppies boiled in oil of lilies, mixed with earthworms, prepared with oil of Venice. Arabian ideas in therapeutics were still dominant throughout Europe. Bezoar stones were thought to be universal antidotes. Charles IX had such a concretion of which he was very proud, and Paré persuaded the king to try it on a criminal who was condemned to death. Accordingly, the criminal was given a poison and immediately the bezoar stone, but died in seven hours. At the autopsy Paré showed that he died of corrosive sublimate poisoning. His opinion of mummy and unicorn's horn, two remedies held in the highest esteem, is interesting. Both were costly remedies, and as the result mummies were sometimes made in France. Paré says, "Nevertheless I believe that they are as good as those brought from Egypt; because they are none of them of any value. Thereupon we will send them back to Egypt, as we will the unicorn to inaccessible deserts."

Paré's practical nature is further shown by his clinical observations. He was the first to suggest that syphilis was the cause of aneurysm. When alopecia is due to this disease, the patient is to be rubbed with mercurial ointment "until he enters the kingdom of Bavaria" a pun on the French word *baver*, to salivate. Paré was the first to discover at autopsy metastatic abscesses of the internal organs following wounds. Finally, as an evidence of Paré's common sense is his experience during the massacre of St. Bartholomew. He pursued his calling with such singleness of purpose, and was withal so useful, that his religion was unnoticed. Charles IX is said to have commanded Paré to come to the king's chamber and not to budge from it, saying that, "it was not right that one who could save so many poor people should be thus massacred."

Correspondence

A Warning.

April 11, 1927.

TO THE EDITOR:

I wish to call the doctors' attention, through your Journal, to a matter which I believe interests them to quite a degree. It has been customary with me, and I am sure with a large number of the profession, to give subscriptions to popular magazines to solicitors, who come around periodically.

I have been victimized twice in this manner. Only recently I gave a check for \$7.80 to a solicitor who had been coming around for quite a number of years, and I presumed was O. K., but, after waiting two months for my magazines, I was notified by the publishers that the man had forged the name of the publishing house; cashed the check; and I am out the magazines and money.

The name of this solicitor is H. E. MacCartney, of Richmond, who has made a specialty of soliciting doctors for *Colliers*, *Judge*, *Scribner's*, etc.

I trust you will publish this letter so that the profession will be warned.

G. C. W.

Proceedings of Societies

The Rockbridge County Medical Society

Held its regular bi-monthly meeting at Jackson Hospital, Lexington, Va., April the 1st. In spite of bad weather there was a good attendance and an unusually interesting program. Drs. A. F. Robertson and M. J. Payne, Staunton, attended as visitors in an effort to arouse interest in the Valley Medical Association. Papers were presented by Dr. H. F. Giesen, of Brownsburg, on "Acute Tetanus: Report of a Case with Recovery"; by Dr. M. T. Vaden, of Buena Vista, on "Management of the Third Stage of Labor", and by Drs. C. H. Davidson and Reid White, of Lexington, on "Tularemia: Symptoms, Diagnosis and Treatment."

Dr. E. P. Tompkins, Lexington, is president of this Society and Dr. Howard L. Mitchell, also of Lexington, secretary-treasurer.

The paper on Tularemia was of unusual interest, especially in view of the fact that Dr. Davidson's case antedated any case so far reported as occurring along the Atlantic Coast.

In connection with the paper by Drs. Davidson and White, it is interesting to publish the following letter to Dr. Davidson from the Office of the Director of the Hygienic Laboratory, Washington.

TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE
OFFICE OF THE DIRECTOR
HYGIENIC LABORATORY

March 30, 1927.

Dr. C. H. Davidson,
Lexington, Va.

Dear Dr. Davidson:

Serum of Mrs. J. M. D., white, female, age 50, collected March 28, 1927, and forwarded with red slip, arrived March 29th, and was found to agglutinate *Bacterium Tularensis* in dilutions of 1:10, 20 and 40, but not in higher dilutions, thus confirming your diagnosis of Tularemia.

In your letter of March 26th, you inquire whether the two D— cases (Nov. 11, 1920, and Nov. 12, 1920), are among the earliest recorded cases in the East.

They are actually the earliest, by one year, of any in the East that have come to my notice. I have been carrying a case of Dr. J. Lawn Thompson, Washington, D. C., as the first to be recognized in the East. His case was a market man of this city who became ill while dressing rabbits in November-December, 1921, with enlarged axillary glands and fever. In June, 1922, his physician, looking back, called my attention to the case, which was then positive, 1:320.

The next earlier cases east of the Mississippi River are three patients of three ophthalmologists of Cincinnati, (Vail, 1914); (Sattler, 1915); (Lamb, 1917).

I will get your case into my articles in the future. I congratulate you on your observations.

Sincerely yours,

EDWARD FRANCIS, Surgeon.

Nottoway-Dinwiddie-Prince George County Medical Society.

Doctors from Dinwiddie, Prince George and Nottoway Counties met in Petersburg on the evening of April 28th and organized a society to be known as the Nottoway-Dinwiddie-Prince George County Medical Society. This organization plans to return their individual charters to the Medical Society of Virginia and request a new charter to include the three counties named. This seems an ideal plan as both Nottoway and Prince George Counties have been inactive for a long time. Dr. Wright Clarkson, Petersburg, was appointed a committee of one to draft suitable Constitution and By-Laws. These were presented and adopted as amended, at this meeting. The fiscal year is to coincide with the calendar year. Meetings will be held bi-monthly.

The following officers were elected to complete the current year: President, Dr. E. W. Young, Petersburg; vice-presidents, Dr. W. W. Bennett, Blackstone, and Dr. S. E. Gunn, Hopewell; and secretary-treasurer, Dr. W. C. Powell, Petersburg.

The Bedford County Medical Society,

At its regular meeting on April the 25th, elected the following officers for the ensuing year: President, Dr. Thomas P. West, Bedford; vice-president, Dr. M. W. Gibbs, Goodes; secretary-treasurer, Dr. R. A. Bennett, Bedford. At this meeting, the Society endorsed the resolutions adopted by the Medical Society of Virginia at its 1926 session with regard to "Public Information and Periodic Health Examinations" and appointed a committee to co-operate with Dr. R. K. Flannagan, chairman in charge of this work.

The Amelia County Medical Society

Held its regular meeting at Amelia, Va., on April 7, 1927. After dispensing with the usual business and discussing important medical matters, the following officers were elected for the ensuing year: President, Dr. George A. Arhart, Amelia; vice-president, Dr. H. Cowles Rucker, Mattoax; and secretary-treasurer, Dr. James L. Hamner, Mannboro.

The Warren-Rappahannock-Page Medical Society

Held its regular meeting in Front Royal, Va., April 19th. There was a large attendance of members and invited guests and this meeting was one of the most interesting in the history of the Society. A banquet was tendered the visitors at the Afton Inn. Dr. E. L. Grubbs, of Front Royal, is president, and Dr. D. M. Kipps, also of Front Royal, is secretary-treasurer.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Washington Program—Woman's Auxiliary to the American Medical Association.

Monday, May 16th will be the beginning of the activities.

MONDAY, MAY 16TH

Morning—

Will be devoted to visiting: Corcoran Art

Gallery; Pan-American Building; The Memorial Continental Hall, N. S. D. A. R., and placing wreaths on the statues of noted physicians—Benjamin Rush, Samuel Gross, William Crawford Long, W. C. Gorgas and Walter Reed.

Afternoon—

Visit to Surgeon-General's Library and a visit to the Navy Yard and Gun Factory, concert by the U. S. Navy Yard Band. Inspection of President's yacht "Mayflower" and the hospital ship "Relief". Visit to Marine Barracks and a concert by U. S. Marine Band. Pilgrimage to Mount Vernon.

Evening—

Visit to Library of Congress where the ladies will especially want to see the shrine of the Declaration of Independence and the Constitution of the United States.

TUESDAY

Morning—

Visit to Washington Monument, Bureau of Printing and Engraving and the Capitol of the United States.

Afternoon—

Trip to Arlington National Cemetery and the old home of General Robert E. Lee. There will be exercises in memory of members of the American Medical Association who gave their lives in the World War.

Evening—

Opening session of the American Medical Association in Memorial Continental Hall, N. S. D. A. R.

WEDNESDAY

This is the most important day for the ladies and the Virginia women are especially urged to make every effort to attend. If they can only be in Washington one day do try to make it Wednesday, May 18th. All ladies are invited whether they are members of the Auxiliary or not.

Morning—

The annual meeting of Woman's Auxiliary to the American Medical Association will be held in the American Red Cross Building Wednesday morning from 9:30 to 12:00. Adjourn for

Afternoon—

lunch nearby, meeting again from 2:00 to 4:00 with a "Working Conference". Reports from the different states will be heard

and plans for advancement discussed. Georgetown College will be at home to the doctors and their wives from 4:30 to 6:00.

Evening—

A special program and Reception at Memorial Continental Hall honoring the wife of the President of the American Medical Association, the wife of the President-elect, the President of the Woman's Auxiliary and the incoming President, and all visiting ladies. This reception is given by the Woman's Auxiliary to the Medical Society of the District of Columbia and all ladies are invited.

THURSDAY

Morning—

Will be spent visiting—New National Museum; Freers Art Gallery; Smithsonian Institute; Old National Museum, and Phillips Art Gallery.

Afternoon—

Another visit to the Navy Yard and the President's yacht "Mayflower" and the hospital ship "Relief". The President and Faculty of George Washington University will be at home to the doctors and their wives at Corcoran Hall.

Evening—

General reception to the President and officers of the American Medical Association and to members of the American Medical Association and their wives at the Mayflower Hotel.

INFORMATION FOR LADIES

Ladies Registration Booth open continuously at Headquarters. Washington Auditorium, 19th and E Sts., N. W.

All guests of the Convention whether members or not, are requested to register at the Woman's Auxiliary Booth in the lobby of the Washington Auditorium. (Headquarters).

Committees on information will be provided and will welcome visitors. These committees will be stationed at all the public buildings at scheduled visiting times. They will also be at the Union Terminal Station, the Mayflower Hotel, the Willard Hotel, the Washington Hotel, the Raleigh Hotel, and at the Washington Auditorium.

Many places of interest to the visitors are not included in our program because of lack of time. Such places are as follows:

National Lincoln Memorial, in Potomac Park; Tomb of Woodrow Wilson, in the National Cathedral, at Mt. Saint Albans; United States Government Printing Office; United States Bureau of Standards; Great Falls of the Potomac River; Franciscan Monastery; Washington Zoo.

Those wishing to visit any of these places should register at any information booth and a trip may be arranged.

The Truth About Medicine

In addition to the articles enumerated in our letter of February 26th, the following have been accepted:

Abbott Laboratories

Abbott's Mineral Oil Emulsion

Ephedrine Hydrochloride—Abbott

Eli Lilly & Co.

Ephedrine Sulphate—Lilly

Pulvules Ephedrine Sulphate—Lilly, 0.025 Gm.

Pulvules Ephedrine Sulphate—Lilly, 0.05 Gm.

Ampoules Ephedrine Sulphate—Lilly, 1 c.c., 0.05 Gm.

Solution Ephedrine Sulphate—Lilly, 3 per cent.

E. R. Squibb & Sons

Scarlet Fever Streptococcus Toxin—Squibb, 1 c.c.

Towt-Nolan Laboratory

Lactobacillus Acidophilus Milk (Towt)

Nonproprietary Articles

Ephedrine

NEW AND NON-OFFICIAL REMEDIES

Concentrated Pollen Extracts—Swan-Myers.—In addition to the products listed in New and Non-official Remedies, 1926, p. 28, the following have been accepted: Cosmos Concentrated Pollen Extract—Swan-Myers; Dandelion Concentrated Pollen Extract—Swan-Myers; Palmer's Amaranth Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis. (Jour. A. M. A., March 5, 1927, p. 788.)

Ephedrine.—Ephedrine is an alkaloid first obtained by Nagai in 1887 from *ma huang* (*Ephedra equisetina*). Chemically, ephedrine is α -hydroxy- β -methylamino-propylbenzene. Structurally, it is closely related to epinephrine. Its salts are, in general, soluble in water and in alcohol, and the solutions are stable. Ephedrine produces effects similar to those produced by epinephrine. It also has been found to exert a direct depressant action on smooth and cardiac muscle. It produces a rather lasting rise of blood pressure, on intravenous or intramuscular injection, due mainly to vasoconstriction. Thus far, the most definite indications for the usefulness of ephedrine are for its local use on the turbinates and for ophthalmic examinations. Ephedrine has proved effective in some cases of asthma.

Ephedrine Hydrochloride.—The hydrochloride of an alkaloid obtained from *Ephedra equisetina*. For a discussion of its actions and uses, see preceding abstract "Ephedrine."

Ephedrine Hydrochloride—Abbott.—A brand of ephedrine hydrochloride—N. N. R. Abbott Laboratories, North Chicago, Ill.

Ephedrine Sulphate.—The sulphate of an alkaloid obtained from *Ephedra equisetina*. For a discussion of its actions and uses, see preceding abstract "Ephedrine."

Ephedrine Sulphate—Lilly—A brand of ephedrine sulphate—N. N. R. Ephedrine Sulphate—Lilly, is also marketed in the form of Pulvules Ephedrine Sulphate—Lilly, 0.025 Gm.; Pulvules Ephedrine Sulphate—Lilly, 0.05 Gm.; Ampoules Ephedrine Sulphate—Lilly, 1 cc., 0.05 Gm.; and Solution Ephedrine Sulphate—Lilly, 3 per cent. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., March 19, 1927, p. 925).

Lactobacillus Acidophilus Milk (Towt).—A milk culture of *B. acidophilus* which contains not less than 250 millions of viable organisms (*B. acidophilus*) per c.c. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations, see New and Non-official Remedies, 1926, p. 211, "Lactic Acid-Producing Organisms and Preparations." Towt-Nolan Laboratory, Oakland, Calif.

Scarlet Fever Streptococcus Toxin—Squibb (New and Non-official Remedies, 1926, p. 368).—This product is also marketed in packages of three 1 c.c. vials, each containing 30,000 skin test doses. E. R. Squibb & Sons, New York.

Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.05 Gm., 1 cc.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.1 Gm., 1 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.13 Gm., 1 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.2 Gm., 1 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.3 Gm., 1 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., 0.45 Gm., 1 c.c.; Glaseptic Ampoules Sodium Cacodylate P. D. & Co., 1 Gm., 2 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for Intravenous Use), 0.2 Gm., 5 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for Intravenous Use), 0.45 Gm., 5 c.c.; Glaseptic Ampoules Sodium Cacodylate—P. D. & Co., (for Intravenous Use), 1 Gm., 10 c.c. For a discussion of the actions and uses of sodium cacodylate, see Useful Drugs, Seventh Edition, p. 113. Parke, Davis & Co., Detroit. (Jour. A. M. A., March 26, 1927, p. 1003).

PROPAGANDA FOR REFORM

Desitin Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Desitin is the nondescriptive name applied to an ointment manufactured by the Chemische Fabrik Desitin Aktiengesellschaft, Berlin-Tempelhof, Germany, and distributed in the United States by the Desitin Chemical Company, Providence, R. I. According to the distributor, there are in 100 parts of Desitin, 28 parts zinc oxide, 14 parts "Bolus alba" (kaolin), 16 parts "Adeps lanae treated with H_2PO_4 and neutralized with KOH," 22 parts "Cod-liver oil extract, which is purified in a $KMnO_4$ solution and then extracted. This extraction is subjected to a treatment with Cl_2 " and 20 parts "Natural Vaseline." No information was furnished the Council in regard to the actual composition of the cod-liver oil extract and an analysis by the "Rijks-Instituut" did not confirm the claimed composition. The ointment is recommended for all sorts of skin lesions and extravagant claims are made for its effects. The Council found Desitin unacceptable for New and Non-official Remedies because the claims made for it are unwarranted. (Jour. A. M. A., Feb. 26, 1927, p. 666).

Lukosine Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that "Lukosine" is an "antiseptic Vaginal Douche Powder" manufactured by The National Drug Co., Philadelphia. In the advertising the preparation is said to contain "the valuable antiseptic constituents of Thyne, Peppermint,

Eucalyptus, Wintergreen with Boric Acid, Alum, Zinc Sulphate, Hydrastine Hydrochloride, Sodium Salicylate and Phenol." Extravagant claims for the efficiency of Lukosine in the treatment of Leucorrhea and other conditions are contained in the advertising. Preparations similar to Lukosine have been offered to the medical profession and to the public for many years. The Council found Lukosine unacceptable for New and Non-official Remedies because it is a semi-secret, needlessly complex, and therefore irrational mixture, marketed with a therapeutically suggestive name and with unwarranted claims, in such a way as to lead to its indiscriminate and ill-advised use by the public. (Jour. A. M. A., Feb. 26, 1927, p. 667).

Book Announcements

The Medical, Social, Economic, Moral and Religious Aspects of Birth Control. By S. ADOLPHUS KNOPE, M. D. (Univ. New York and Paris), New York. Third Edition. Revised and enlarged. Based upon an address delivered December 21, 1925, at the New York Academy of Medicine before the Medical Association of the Greater City of New York, and printed in the *Medical Journal and Record* of January 6, 1926. 66 pages. Price 25c paper bound; 50c cloth bound. For sale by American Birth Control League, Inc., 104 Fifth Av., New York, receipts to be used for propaganda work of the League and the maintenance of birth control clinics.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Various Subjects, by Leading Members of the Medical Profession Throughout the World. Edited by Henry W. Cattell, M. D., Philadelphia, and others. VOLUME I. Thirty-Seventh Series, 1927. Philadelphia and London. J. B. Lippincott Company. 1927. Octavo of 304 pages. Illustrated.

Mineral Waters of the United States and American Spas. By WILLIAM EDWARD FITCH, M. D., Member of the International Society of Medical Hydrology, etc. Illustrated. Lea & Febiger. Philadelphia and New York. 1927. Octavo of 799 pages. Cloth. Price \$8.50.

The Fifth Avenue Hospital Clinics. First Series Based on the Material from the Semi-Monthly Staff Meetings, MCMXXV. Editorial Board: JOSEPH H. FOBES, M. D., MILTON J. RAISBECK, M. D., D. S. D. JESSUP, M. D., Secretary, and CHARLES F. TENNEY, M. D., Chairman. Paul B. Hoeber, Inc., Publishers. New York, 1927. 336 pages, Illustrated. Cloth. Price, \$5.00.

Should We Be Vaccinated. A Survey of the Controversy In Its Historical and Scientific Aspects. By BERNHARD J. STERN, Instructor of Sociology, Columbia University. Harper & Brothers, Publishers. New York and London. 1927. 146 pages. Cloth. Price \$1.50.

Proceedings of the Nineteenth and Twentieth Conferences of the American Association of Medical Milk Commission, in Conjunction with The Certified Milk Producers' Association of America. Nineteenth Annual Conference held at Atlantic City, N. J., May 25 and 26, 1925. Twentieth Annual Conference held at Dallas, Texas, April 19 and 20, 1926. Brooklyn, N. Y. 1926. 340 pages. Cloth.

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No. 2

Editorial

Adenomatous Goiter.

Practitioners may well consider carefully the early and clinical symptoms of toxic adenomatous goiter. It appears after adolescence: it is relatively rare before the age of thirty. Seventy-eight per cent, says Plummer, are in persons more than forty. Asymmetry of the thyroid suggests adenoma but it is not possible to say without careful study whether or not it is one in which hyperthyroidism has developed. But it is a matter of importance to the practitioner to know whether or not hyperthyroidism is present. It is easy to suspect toxic thyroid in patients with nodular enlargement of the gland, who show nervous symptoms and rapid heart action. But it is equally important to identify adenomatous goiter developing hyperthyroidism in those in whom these signs are not so obvious or at the time absent. Single or multiple adenoma may exist, submerged from view. Only a differentiating inquiry into the status of the thyroid by physical examination often reveals the presence of this type of thyroid enlargement. There are not a few cases in whom the nodular growth of the thyroid lies on one or both clavicles. In such an examination is revealed an enlarged thyroid-nodule which had been unknown to the patient. This sort of condition not infrequently exists in patients who seek relief from the "nervous" heart or in patients who suffer from palpitation, and tachycardia. Once identified, the adenoma of the thyroid explains the cardio-vascular symptoms which had been confusing in the matter of the etiologic

factor at work. Adenoma with hyperthyroidism brings about fixed cardio-vascular symptoms of serious import and the longer that state obtains in the body, the more inexorable becomes the heart disturbances. All enlarged thyroid cases past thirty should be tested for hyperthyroidism. The basal metabolic rate should be made; a number of such tests may be required. All cases of fibrillation, with enlarged thyroid, should be subjected to the basal metabolism test. These cases may show few if any of the typical signs which one finds in exophthalmic goiter. There may be no evidence of stare, or fine tremor. These patients may present only obscure evidence of nervous tension and tenseness of expression, with an irritable heart. These patients, with adenomatous goiter and hyperthyroidism, often give a history of failure of strength, a lack of patience, a feeling of unrest and irascibility. The heart disturbs them on slightest excitations. They sleep badly. Nervousness, insomnia, palpitation, shakiness, but an increased tolerance for cold, characterizes adenomatous thyroids with hyperthyroidism.

Toxemia of Pregnancy.

When a pregnant woman shows any of the following symptoms one may say that she has toxemia: (1) Pernicious vomiting, (2) jaundice, (3) hypertension, (4) albuminuria, (5) edema, (6) severe anemia, (7) convulsions, (8) visual disturbances. These grave phenomena of pregnancy denote the presence of poison of undetermined origin for which no definite cause has been found.

In this connection Corwin and Herrick have recently called attention to the relation of "hypertensive toxemia of pregnancy" to chronic cardio-vascular diseases. They studied 165 cases and 74 per cent exhibited cardiac hypertrophy, sclerosis of the brachial or radial arteries, vascular retinal changes, or persistent hypertension after a period of from six months to six years post partum. Of fifty-two patients who had shown signs of toxemia, when first attended, fifty showed hypertension in the subsequent pregnancy. They suggest that patients who manifest this type of disturbance should be carefully observed over a period of years for evidence of cardio-vascular disease.

Keratitis in Congenital Syphilis.

Pathologically in keratitis of congenital syphilis there is a round cell infiltration in the deeper layers of the cornea; occasionally,

poymorphonuclears, epithelial cells, and giant cells. A like process is found in the ciliary body and iris. The cells in the center undergo necrosis, but rarely ulcerate. The impairment of vision through opacity depends upon the amount of this necrosis. There is quite an unanimity of opinion that there is an absence of spirochaeta pallida in the cornea in this condition. Various opinions have been expressed in explaining this pathologic change. Elsching thought it was due to toxins which reach the cornea by way of its limbus. Reis and others felt that toxins came in by the amniotic fluid and produce cell infiltration by chemotaxis. However, some have found spirochaetes in the cornea in interstitial keratitis.

It is felt that one is dealing here with a rather gummatous type as found in the third stage of syphilis and that the permanent scarring varies with the promptness and thoroughness of the treatment.

Pernicious Anemia.*

Pernicious anemia has been for a long time one of the most perplexing medical problems. Its causation, and its treatment have been subjects over which much discussion, investigation and inquiry have been carried on. Recent observers in this disease have called attention to a special form of dietary treatment. This dietary program has apparently benefited some patients suffering from pernicious anemia. Minot and Murphy have used this diet which contains a large quantity of complete proteins in the form of liver. These patients, in their hands, showed marked symptomatic improvement excepting in spinal cord symptoms. Recently, Murphy and others, have studied the changes in the composition of blood in pernicious anemia patients who have been treated by this special diet. They observed ten cases of pernicious anemia. These patients were given the original diet as described by Minot and Murphy. This consisted in a daily allowance of 120 to 240 grams, and sometimes more, of cooked calf or beef liver. Sometimes an equal amount of lamb kidney was substituted. To this was added 120 grams of beef or mutton muscle meat, 300 grams of vegetables, especially lettuce and spinach; 250 to 500 grams of fruit; 40 grams of fat, merely to make the food attractive; an egg or 240 grams of milk; dry or crusty bread, potato and cereals to make a caloric allowance of 2,000 to 3,000

The patients continued the use of this for

several months and were given no medicine except 4 to 8 c.c. of diluted hydrochloric acid U. S. P. three times a day.

This diet treatment appeared to cause the formation of new, young red blood cells from the bone marrow. These appeared in the general circulation. About the same time that there was a marked reaction in bone marrow, a decrease of bile pigment concentration in the serum was noted. There was an increase of red blood cell count, hemoglobin concentration, accompanied by a progressive growth "in the blood tissue as a whole as estimated by blood volume determinations".

It is worthy of note that there was no change in the non-protein nitrogen of the plasma or plasma protein; however, there was a notable increase protein of the corpuscles, and hemoglobin concentration.

Dr. Joseph A. White's Birthday Party.

"The withering type of Time and Care
Hath nothing, sure, to do with thee."

A notable gathering on a notable occasion, to do honor to a notable man! Such was the gathering assembled at the old Commonwealth Club in Richmond, Virginia, on April 19, 1927, the birthday of Dr. Joseph A. White.

Which birthday? See him in the ball-room you might guess twenty; on the golf course, twenty-four; in the operating room, forty-five. Choose what number you wish.

It was a wonderful sight; a great banquet hall beautifully decorated, containing more than a hundred and fifty guests, all chatting happily about the tables. The music strikes a lilting march, and down through the corridor, comes the procession: Dr. White escorted by Dr. Robert C. Bryan and Dr. Stuart Michaux; and after these, the notable guests of honor from other states and cities, who were to be the speakers of the evening. These were: Dr. George E. DeSchweinitz, former president of the American Medical Association, and of the American Ophthalmological Society; Dr. J. Wilkinson Jervy, of Greenville, S. C.; Dr. Dave T. Taylor, of Washington, N. C., former president of the Tri-State Medical Society; Dr. Thomas R. Holloway, of Philadelphia, professor of Ophthalmology of the University of Pennsylvania; Dr. Edward A. Looper, laryngologist, of Baltimore; Dr. Lewis H. Taylor, of Wilkes-Barre, Pa., and Dr. Hiram Woods, of Baltimore, former president of the American Ophthalmological Society.

*J. A. M. A., Vol. 88, No. 16, pg. 1211.



Dr. White was acclaimed with a great burst of enthusiastic applause. Dr. Bryan introduced Dr. W. T. Oppenheimer as toast-master, and when the delightful repast was over Dr. Oppenheimer in his attractive and inimitable way introduced the speakers.

Not in many years have there been in Richmond so many charming and graceful speakers. There was a play of wit, wisdom and humor, with a deep throbbing under-current of affectionate esteem that made this unique occasion one long to be remembered. Following the speakers Dr. Emory Hill read selections from a great pile of letters and telegrams of distinguished specialists and friends who were unable to attend. Someone should codify these in a memory book for seldom does one see such a delicate play of wit and humor compressed in so small a space. One of these writers, who evidently knows Dr. White as intimately as his Maker, in just one sentence said all that ever need be said about him. If Dr. White ever has a tombstone and anyone else is left in the world to carve upon it, and if Dr. White doesn't stop him or change it, I know of no more appropriate sentiment epitomizing the life of this wonderful man than the words this writer used: "Panting Time toils slowly after him!"

In a speech filled with feeling, with all the little niceties of expression of deep personal regard of which only Dr. John Dunn is capable, a silver service was presented to Dr. White.

The evening closed with Dr. White's speech of acceptance in which he tried to tell his hearers of his deep appreciation of their affection and esteem. It must have been a hard speech to make. But Dr. White is noted for doing the hard things well and though deeply affected did this one splendidly.

W. L. P.

Besides the foregoing description of Dr. White's birthday party it seems appropriate to comment briefly upon the man himself. His accomplishments are worthy of note. His personality and his charm, likewise, invite a word, at least. Few men have stood out as distinguished as Dr. Joseph A. White. He has occupied in professional opinion a high place in his chosen field of ophthalmology. Dr. White, in 1879, established himself in Richmond as a specialist in the disease of the eye, ear, nose and throat; and his work, his suc-

cessful practice, his leading positions in the medical organizations, from that time to the present, have placed him in the foremost rank of American specialists. He is known particularly, however, as an ophthalmologist the country over. He stands well with other distinguished American ophthalmologists. This was strikingly brought out at his birthday party, by the large number of telegrams and letters, which were read, from foremost ophthalmologists of distant cities. This was further attested to by the fact that busy and distinguished ophthalmologists, from Philadelphia, Baltimore, and other cities journeyed to Richmond in order that they might be present on the occasion of this birthday celebration. The praise expressed by these and other speakers, evinced the high position he occupies in the esteem of his professional fellow-workers.

As a teacher Dr. White has attained a well deserved high place. As professor of ophthalmology (and one of the founders) in the University College of Medicine, and, later, in the Medical College of Virginia, Dr. White has, since his early professional career, taught hundreds of medical students the diseases of the eye. Dr. White's "eye-clinic" has been ever a popular place with the students: all admiring the wide knowledge as well as the striking personality, of their teacher. His alert mind, his dexterous hand, his bright and apt comments, his interesting and unique personality have been the admiration and wonder of his pupils. The precision and exactness of his eye operations, likewise, challenged their interest, as well as instructed them.

Many honors have come to Dr. White through the partiality of his medical associates. Among others he has been President of the American Ophthalmological Society; President of the Tri-State Medical Association; and President of the Medical Society of Virginia; and President of the Richmond Academy of Medicine.

During the course of his long career Dr. White has done a large volume of daily routine practice, and has performed hundreds of operations upon the eye. His reputation throughout the South, brought to his offices through the years, a large number of clients from remote sections. For many years, with his assistants, he did a large practice. Many of the specialists in Richmond and other places, have served their noviciate under Dr. White. No man left his service, without feel-

ing a strong sense of obligation to him. He was always esteemed by those who served under him. Some of his greatest admirers today are his office assistants of former years.

Dr. White possesses something besides scientific knowledge and skill. He has a certain charm of personality. In this possession he is ever striking and engaging: a personality quite unique, and, withal, most likeable. Richmond doctors, Virginia doctors, and doctors the country over, who come under the influence of his companionship, like him. He makes a friend when he meets a stranger. The warmth and cordiality of his greeting, the convivial and ingratiating influence of his manner, his quality of good fellowship for all ages, makes Dr. White known and beloved everywhere he may be. He is ever ready with a story; he is ever telling some yarn; he is ever willing to listen—but not for long.

And he is such a sport. Some men excel in one sport, and some in another, but he is a "sport" who excels in all. Some sports have their day and become "has beens", but here is a "sport" who is not a "has been" and never will be. He golfs, he dances, he rides. He fox-hunts; he gives exhibitions of horsemanship (only last year) over the jumps at public horse shows. He works, he plays, and he never tires. He goes to social functions, dances late in the night and is up bright and early next morning, seeing patients in his office. Was there ever such a man?

But one can not go on extoling Dr. White.

We have here a reproduction of a photograph of him, which we present to his many friends of the Medical Society of Virginia. His distinguished career as doctor, a teacher, a social and friendly man, has been adorned, it seems to us, by one lofty virtue worthy of mention, in conclusion of this appreciation. In this moral quality, with its fine shades of influence, may be found, at least in part, the source of his long and useful career, as well as of the winning charm of his personality!

TO ALL, HE ADDS CHARITY.

A. G. B.

News Notes

On To Washington!

Very few Virginia doctors know much about the American Medical Association and the profession of the state is losing many of the good

things that come to the doctors of other states by keeping in close contact with the National Association.

Organized medicine can do much for us if we would but avail ourselves of it.

The Association meets May 16th to 20th at our very doors, and conveniently accessible to all by rail, boat or motor.

Such an opportunity should be seized upon by every doctor of the state. He should visit the meetings of the House of Delegates, the various sections in which he is interested, and the extensive scientific exhibits.

If this is his first meeting, he will be tremendously interested and benefited to see the magnitude of the work the National organization is doing for the profession and the public, and he will return home greatly broadened in his views and determined to do his full part in developing his local society and through it the State Society, both of which are integral parts of the American Medical Association.

In the past the attendance from Virginia has been small and especially disappointing to your delegates. In Texas, California and other states the local profession took a pride in making their attendance as near 100 per cent as possible.

Let us follow suit and arrange for *every doctor* of the state to go on to Washington for a part or the whole of the meeting.

IT WILL PAY YOU TO GO.

S. L.

Virginia Doctors!

You cannot afford to miss the meeting of the American Medical Association in Washington, the middle of May. Thirty-six years have elapsed since the A. M. A. last met in Washington and so this may be an opportunity to come to us only once in a lifetime. We have good motor roads, attractive boat trips and numerous railroad facilities for getting to Washington and this occasion will be as interesting as any can be. Arrangements have been made for reduced railroad fares on the Certificate plan. Secure certificate from the ticket agent when you buy your straight ticket to Washington and have this certified at the Registration Bureau after reaching there.

A big program has been prepared, socially as well as scientifically—one that could only be staged in the Nation's capital. The President of the United States has consented to address the opening meeting and the Presi-

dent and Mrs. Coolidge will receive fellows and their wives in the South Grounds of the White House on Wednesday, May the 18th, at 12:30 P. M. There will be exhibits, alumni reunions, scientific meetings and social gatherings, as well as sight seeing and reunions with friends.

Our Society has three delegates in the House of Delegates: Dr. Southgate Leigh, Norfolk, Dr. Stuart McGuire, Richmond, and Dr. J. W. Preston, Roanoke. All three expect to attend the meeting.

Standards of Prenatal Care.

Two pamphlets published in 1926 by the U. S. Department of Labor should be read by every doctor in the State of Virginia who practices obstetrics.

In one of the pamphlets two articles appear, one entitled "The Physician's Part in a Practical State Programme of Prenatal Care" by Fred L. Adair and the other "Standards of Prenatal Care" by Robert L. DeNormandie. The other has the title "How to Make a Study of Maternal Mortality" by Robert L. DeNormandie.

The objects of these articles is to call attention to the frightful mortality among the pregnant and delivered women and to make an effort to arouse the profession to better and cleaner prenatal and obstetrical work.

Dr. Adair starts his prenatal care in the anti-conceptional and pre-embryonic times and would seem to call to our aid the pediatricists to watch over the kidneys of the girls following scarlet fever and diphtheria. He further indicates the importance of the recognition of rachitis and its importance upon the development of the pelvis.

In this article as well as in Dr. DeNormandie's, stress is laid upon a careful history both general and obstetrical.

In the standards of prenatal care it is frankly acknowledged that the plan of prenatal care is a compromise that has been arrived at because of the various views of the committee that was appointed to draw up these standards. While the standard is a good average, still one could vary rather markedly from the plan laid down without being out of the march of progress. Our own ideas would differ from the standard only in non-essential details and would hardly be important enough to mention in this review. The standard is in our opinion not too high, in fact I would rather say too low.

The essence of prenatal care is a careful history, frequent visits to the office, where urinalyses, blood pressure readings, weight, pelvimetries, foetometries and careful mapping out of presentation and position can be made.

As to how to make a study of maternal mortality, Dr. DeNormandie puts the blame for rising maternity where it rightly belongs, upon the doctor. The pity is that it had to be written at all.

Obstetrics is a very poorly paid, nerve racking affair. Often a decision as to what to do in a case comes after a night of broken rest and hard work. That might be an excuse for poor operative work, but there is really no excuse for poor prenatal work except that the patient will not co-operate.

These pamphlets may be obtained from the State Board of Health and will repay amply the trouble of writing for them. They may stimulate the man who is trying to do better work and will probably make the slovenly man mad. That might do him good too.

GREER BAUGHMAN.

Dr. Hunter H. McGuire,

Winchester, Va., recently addressed the Eastern Panhandle Medical Society, at Martinsburg, W. Va., his subject being "Incipient Cataract."

Dr. George S. Silliman,

Formerly with the U. S. Veteran's Hospital at Aspinwall, Penna., is now with the Johnston Willis Memorial Clinic at Abingdon, Va., as roentgenologist and urologist. Dr. Silliman served the Veterans' Bureau in this specialty for eighteen months and has had eight years' experience in this work in Northern hospitals.

New Hospital in South Boston, Va.

Dr. R. H. Fuller, until recently in charge of Little Retreat Hospital, at Clover, Va., has closed this place and expected to open a hospital in South Boston, Va., about May the 1st. The new hospital will be able to care for about twenty-four patients and will be known as the South Boston Hospital. Much of the equipment from the hospital at Clover has been transferred to the new place.

The National Tuberculosis Association

Will hold its annual meeting in Indianapolis, Ind., May 23-26, under the presidency of Dr. Henry Sewall, of Denver, Col. Headquarters will be at Claypool Hotel. Information about the meeting may be obtained from the headquarters of the National Tuber-

culosis Association at 370 Seventh Avenue, New York City.

Dr. J. L. Hamner

Has returned to his home at Mannboro, Va., after a visit to West Virginia.

Summer Clinics.

The Chicago Medical Society, 25 East Washington St., Chicago, Ill., announces that it will have summer clinics this year for two courses. The first will be from June 13th through June 24th, and the second from June 27th through July 8th. Registrations will be open to all reputable physicians from any state, as far as they may be accommodated, in order of registration.

Dr. R. T. Givens,

Glen Wilton, Va., has returned home after attending the Post-Graduate Clinics held at the University of Virginia Hospital.

Dr. S. E. Hughes,

Danville, Va., has been on a visit to Asheville, N. C.

Report of Commission on Medical Education.

Any of our readers interested in the general questions of medical education and practice may obtain a copy of the "Preliminary Report of the Commission on Medical Education" without charge, by addressing the Commission on Medical Education, 215 Whitney Avenue, New Haven, Connecticut.

Dr. L. E. Cockrell,

Reedville, Va., was a recent visitor in Baltimore, having gone there on professional business.

Pavilion Opened at Blue Ridge Sanatorium.

The George W. Wright Memorial pavilion was opened at Blue Ridge Sanatorium, Charlottesville, Va., April 26th. Beds in this pavilion are intended for the use of Masons in good standing and dependent members of their families. In case all the beds are not in use by the Masons, they may be had by others desiring to enter the Sanatorium.

Medical Director at French Lick Springs Hotel.

Dr. A. H. Harold, an experienced physician of Indianapolis, has recently accepted the position as medical director at French Lick Springs Hotel, French Lick Springs, Ind., succeeding Dr. Dunning Wilson, who was killed last winter in an automobile wreck in Cuba.

Dr. Harry Sutelan,

Of the class of '24, University of Texas, De-

partment of Medicine, has located in Norfolk, Va., for the practice of medicine. Just after graduating, Dr. Sutelan interned at St. Vincent's Hospital, Norfolk, and later at the New York Lying-In Hospital, and at Kingston Avenue Hospital for Contagious Diseases in Brooklyn, N. Y.

Dr. J. C. Cutler,

Newport News, Va., was a recent visitor in Richmond, having come up on business.

A Nursing Mother Needs Sunlight and Green Vegetables.

Experiments recently made by physicians seem to prove that if a nursing mother has plenty of direct sunlight or is treated by artificial violet rays, she will be able to give her baby what is needed to prevent rickets and also escape for herself the breaking down of the teeth which so often follows the bearing and nursing of children. Other experiments have shown that the ricket-preventing vitamin A is associated with the green color of the vegetables in which it occurs, so that the ordinary garden variety of lettuce is a far better source of energy than head lettuce.

Dr. R. T. Akers,

Alum Ridge, Va., is at home and at work again, after spending three months in the hospital for blood poisoning in his right leg.

Dr. B. C. Keister,

Washington, D. C., left the last of April for a visit to his daughter in Minneapolis, Minn. On his way West, he expected to visit some of the hospitals and post-graduate schools in Chicago. Dr. Keister planned this trip for last winter but on account of unexpected business was compelled to defer it to this time.

Dr. Raymond D. Kimbrough,

Of the class of '24, University of Virginia, Department of Medicine, has located in Charlotte, N. C., where he is connected with the Nalle Clinic, in the department of internal medicine. His offices are in the Professional Building.

Dr. William E. Warren,

Williamston, N. C., was recently elected president of the Second District Medical Society of North Carolina for 1927.

Chile Takes Important Steps for Child Health.

Chile has recently reorganized its National Health Service, instituting periodic physical examinations of all school children, to be reported on official examination blanks; a school

for instructing visiting public health nurses; and a course of training for sanitary inspectors. It has also worked out plans for a sanitary type of house which can be quickly constructed from native materials at relatively small cost.

Dr. Frank McCutchan,

An alumnus of the University of Virginia, Department of Medicine, for sometime House Surgeon at the Manhattan Eye, Ear and Throat Hospital, of New York City, has located in Roanoke, Va., where he is a member of the staff of the Gill Memorial Eye, Ear and Throat Hospital.

Dr. Tom A. Williams,

Formerly of Washington, D. C., will spend the summer in Florence, Italy, and will not return to Miami, Fla., where he is now located, until late in the Fall. He will spend the early part of June at the Royal Society's Club in London, to which correspondence should be addressed.

During his absence, the Child's Guidance Clinic, of which Dr. Williams is psychiatrist, will be directed by Dr. Agos.

The Hospital Clinical Congress of North America

Will be held June 20th to 24th, in the Milwaukee Auditorium, Milwaukee, Wis., under the auspices of the College of Hospital Administration of Marquette University.

The twelfth annual convention of the Catholic Hospital Association of the United States and Canada will be held coincident with the Hospital Clinical Congress. All communications relative to either meeting should be addressed to the College of Hospital Administration, 124 Thirteenth Street, Milwaukee, Wisconsin.

All persons engaged in any phase of modern hospital work should be interested in the clinic and exposition and sessions are open to all interested. While the clinical idea will predominate, the Congress will emphasize the most modern ideals and standards in hospital equipment, organization and planning. The department of Industrial Hospitalization will be especially important for it will demonstrate the preventive, curative and alleviative work being done by the industries and large corporations of the country. Compensation and the work of insurance companies will also be demonstrated.

Dr. and Mrs. Arthur S. Brinkley,

Richmond, returned home about the middle of April after a visit to New York.

Great Britain's New Legitimacy Act.

Until the beginning of this year no child born out of wedlock in Great Britain could be later legitimated by the marriage of the parents. On January 1, 1927, an act came into force making this possible, except in cases where either parent was married to a third person at the time the child was born. Legitimation dates only from the time the act came into force even though the marriage occurred earlier. Legitimated children are to have the same rights of inheritance as children born in wedlock, and they have the right to have their births re-registered.

Added to Teaching Staff.

The New York Polyclinic Medical School and Hospital, New York, N. Y., announces that the following names have been added to its faculty:

Dr. Frederic W. Bancroft, as Professor of Surgery;

Dr. Harold E. Santee, as Professor of Surgery;

Dr. Charlton Wallace, as Professor of Orthopedic Surgery;

Dr. Percy H. Williams, as Professor of Gynecology; and

Dr. John H. Carroll, as Professor of Internal Medicine.

The Abbott Laboratories,

North Chicago, Ill., announce that at their annual meeting held on March the 17th, the following officers were elected: President, Dr. Alfred S. Burdick; vice-presidents, E. H. Ravenscroft, Henry B. Shattuck, James W. Ranson; treasurer, C. O. Brown, secretary, S. DeWitt Clough; general counsel, Alfred W. Bays.

Dr. Alfred S. Burdick sailed on the Cedric, April 9th, for a two months trip in Europe. He is accompanied by Mrs. Burdick, Mrs. H. B. Shattuck and Mr. H. B. Shattuck, manager of the New York branch of the Abbott Laboratories. England, France, Germany, Switzerland and Italy will be visited.

Dr. and Mrs. S. E. Weymouth

Have returned to their home at Callao, Va., after a visit to Florida.

Dr. J. S. Horsley, Jr.,

Richmond, Va., attended the annual meeting of the Southern Society of Clinical Surgeons,

which was held in Cleveland and Cincinnati, O., April 4-8, inclusive, and was elected secretary-treasurer of the Society for the coming year.

The American Gynecological Society

Will hold its annual meeting at Hot Springs, Va., May 23-25, under the presidency of Dr. Arthur H. Curtis, of Chicago. Dr. Floyd E. Keene, of Philadelphia, is secretary.

Changes in Medical Department, University of Virginia.

At the April meeting of the Board of Visitors of the University of Virginia, the following changes in the Medical Department were announced: Dr. Stephen H. Watts resigned as professor of surgery and gynecology, as he is retiring from active service; Dr. I. A. Bigger resigned as assistant professor of surgery to be on the staff of Vanderbilt University, at Nashville, Tenn.; Dr. Cuthbert Tunstall was named instructor in diseases of the ear, nose and throat; Dr. James C. Flippin was promoted from acting dean to dean of the Medical Department.

Dr. and Mrs. Wm. Edward Smith,

Farmville, Va., left the latter part of April for Boston, Mass., where Dr. Smith will take post-graduate work at the Massachusetts General Hospital, until September the 1st.

Dr. and Mrs. M. H. Watson,

Of McRoberts, Ky., have been on a visit to relatives at their former home in Chatham, Va.

Dr. and Mrs. I. Keith Briggs,

South Boston, Va., have returned from a motor trip through the Valley of Virginia where they went, with a party of friends, to witness the Apple Blossom Festival.

Hospitals to Care for Patients With Moderate Means.

The Journal of the A. M. A. states that plans have been made to raise \$500,000 to build a hospital at Warwick, N. Y., to care for patients who are unable to pay for private treatment but who are unwilling to accept charity. The hospital is to have rooms costing from \$17.50 to \$25.00 a week.

It is stated in the same issue that the trustees of Mt. Sinai Hospital have likewise decided to make provision for private patients with moderate means who cannot afford the present price of private rooms and yet do not wish to be placed in the wards.

Dr. and Mrs. O. J. Henderson

Have returned to their home in Montgomery, W. Va., after spending the winter in San Diego, California.

Dr. Garnett Nelson,

Richmond, is much improved and has resumed his work after spending several weeks in St. Luke's Hospital.

Married.

Dr. Ryland Atwood Blakey, Fayetteville, N. C., and Miss Catherine Hagood, of Easley, S. C., April 14th.

Children Who Work Outside School Hours.

The National Child Labor Committee has recently published a study of 673 working school children under 16 years of age in certain smaller cities and towns of Missouri. One-fifth of the children worked twenty hours or more a week. Added to the required thirty hours of school work this made a working week of fifty hours of more. The forty-eight hour week is generally recognized as a standard for adults. This is not the worst of the story, for nearly 8 per cent of the 673 children worked thirty hours or more per week, and over a fourth of them worked at night.

Correspondence Course and Teaching Institutes for Nurses.

The Metropolitan Life Insurance Company has adopted the plan of keeping its visiting nurses abreast of the times by means of correspondence courses and teaching institutes. So popular has this plan proved in the three years since it was inaugurated that it promises to be far-reaching in its effects. Correspondence courses have been arranged and teaching institutes are now being held twice a year in each of the Company's nine territories. Invitations are extended the Red Cross, State Departments of Health and Visiting Nurse Associations to have representatives attend the teaching institutes.

In addition to these advantages available to staff nurses already in the employ of the company, the Metropolitan has experimented with a system for teaching nurses about to enter the company's service. A center for this work was started in Jersey City about three years ago. Here the nurses spend six weeks being taught proficiency in their new duties. So successful has this feature proven that two additional centers will be organized in New Orleans and Atlanta.

Dr. and Mrs. James M. Moser,

With a party of friends from Washington, D. C., recently visited in Tappahannock, Va.

Dr. Herbert C. Jones,

Petersburg, Va., left the last of April for New York, where he will take up post-graduate work in surgery. Before returning to his home, he will also visit the Mayo Clinic at Rochester, Minn.

Dr. and Mrs. Jeter R. Allen,

Marshall, Va., returned home the latter part of April, after a northern tour, which included visits to a number of interesting places, among which were New York, Philadelphia, Baltimore and Washington.

Dr. E. L. Sutherland,

Recently of Charlottesville, Va., has moved to Lynchburg, Va., where he will have offices at 811 Church Street. He will continue to specialize in diseases of the eye, ear, nose and throat.

The West Virginia State Medical Association

Is to hold its annual meeting at White Sulphur Springs, W. Va., June 21-23, under the presidency of Dr. Chester R. Ogden, of Clarksburg. Mr. Sterrett O. Neale, Charleston, is executive secretary.

Influenza on the Wane in Europe.

According to report given out by the League of Nations Non-Partisan Association, there is now a marked decline in deaths from influenza in Europe, where the disease has been so prevalent for the past few months. The highest point in the outbreak was reached in January and the highest death rate was reported in Geneva, Switzerland, where there were 129 influenza deaths per 100,000 inhabitants between December 5 and February 12. This figure is almost equal to Geneva's annual tuberculosis mortality rate.

There was a marked incidence of influenza, in varying degrees of intensity, during the winter season in all of the European countries. In the United States, however, there seemed no unusual prevalence of the disease.

Dr. Stuart McGuire

Has just returned to his home in Richmond from a visit to California, where he gave an address by invitation before the California Medical Association at Los Angeles.

Dr. J. A. Tyree,

Danville, Va., has been elected vice-president of the Rotary Club of that city for the ensuing year.

Petersburg Hospital to be Enlarged.

Plans are being made to enlarge the Petersburg Hospital, Petersburg, Va., to meet the needs of the surrounding country as well as the city. The committee of doctors in charge of planning for the larger hospital is composed of Dr. Wright Clarkson, chairman, and Drs. W. C. Powell, William B. McIlwaine, and George H. Reese. The annex being considered will furnish greatly enlarged facilities and will be modern in every respect.

Dr. Charles R. Robins,

Richmond, Va., has been elected vice-president of the Richmond Rotary Club for the year beginning May 1st.

Dr. John P. Munroe,

Charlotte, N. C., has been elected president of the New Charlotte Sanatorium, in that city, for the current year, and Dr. Silas R. Thompson has been elected chairman of the staff.

Dr. I. A. Bigger,

Assistant professor of surgery in the University of Virginia, Department of Medicine, recently tendered his resignation, and left the first of May for Nashville, Tenn., where he has accepted the position of associate professor of surgery in Vanderbilt University, Medical School.

The Walter Reed Medical Society

Will hold its annual meeting at Yorktown, Va., May 26th and 27th, and the usual attractive program is anticipated. Dr. J. W. C. Jones, of Newport News, is president, and Dr. L. E. Stubbs, also of Newport News, is secretary. There will be several papers by invited guests in addition to voluntary papers by members.

The Crippled Preschool Child.

The Wisconsin Association for the Disabled reports that 78 per cent of the crippled children found in its survey of Fond du Lac County were disabled before the age of seven years. This fact seems to emphasize the need for physical examination of the preschool child.

Dr. Southgate Leigh,

Norfolk, Va., delivered an address in Atlanta, last month, before the Commission on Interracial Co-operation, his talk dealing with a solution of the high death rate in the negro race.

Dr. P. L. Hill,

Of the class of '17, Medical College of Virginia, who was connected with the Mission

Hospitals in Wonsan and Choonchun, Korea, under the direction of the Southern Methodist Board of Missions, from November, 1917 to December, 1926, returned to the States the last of December and has located in Petersburg, Va., with offices at Franklin and Sycamore Streets.

On Staff of Medical College of Virginia.

Dr. Sidney S. Negus, professor of organic chemistry at the University of Richmond, has been appointed to a similar position in the Medical College of Virginia, Richmond.

The Medical Society of Virginia, Maryland and District of Columbia

Will hold its regular semi-annual meeting in Alexandria, Va., June 8, 1927, at 8 P. M. Dr. G. Bache Gill, of Washington, D. C. is president, and Dr. Joseph D. Rogers, also of Washington, corresponding secretary.

Dr. Robert P. Cooke.

Recently with the Accomac County Health Unit, has located in Lexington, Va., where he is in charge of the Rockbridge County Health Department.

Wanted.

Relief work leading to permanent location in Virginia, West Virginia or Kentucky. Twenty-three years' practice, fifteen in industrial work. Will consider any good location. Best of health and recommendations. Small family. Available immediately. Can make a small investment but prefer place with much work and proper compensation for my efforts. Address answer to "No. 50", care this journal. (*Adv.*)

Wanted.

We have several well-trained practical laboratory technicians graduating from our school of public health May 15. Physicians, hospitals and health departments desiring such service can secure it by writing immediately; first come, first served. Address Dr. L. H. South, State Bacteriologist, 532 West Main Street, Louisville, Ky. (*Adv.*)

Obituary

Dr. Harry M. Tayloe.

Of Hague, Va., died at his home in that place, April 21st, after a short illness with pneumonia. Dr. Tayloe was born in Fauquier County, Virginia, fifty years ago and received

his early education at Bethel Military Academy. Upon completion of his studies there, he entered the Medical Department of George Washington University, Washington, D. C., and took his diploma in medicine from that school in 1908. He had been a member of the Medical Society of Virginia since 1909.

Dr. McMinn M. Pearson,

For nearly a quarter of a century a member of the Medical Society of Virginia, died at his home in Bristol, Va.-Tenn., April 9th, death being due to angina pectoris. Dr. Pearson was a native of Tennessee and sixty-three years of age. He graduated from the Hospital College of Medicine, Louisville, Ky., in 1889. Dr. Pearson was at one time an associate editor of the former *Virginia Medical Semi-Monthly* and was for a term one of the councilors from the State-at-large in the Medical Society of Virginia.

Dr. John E. Mapp,

Retired physician of Keller, Va., died at his home in that place on April 30th, after an illness which extended over several months. He was eighty years of age and had graduated from the College of Physicians and Surgeons, Baltimore, in 1868. He then located in Accomac County, Virginia, where he practiced continuously for about fifty years. He was an honorary member of the Accomac County Medical Society and took an active part in the civic enterprises of his county.

Dr. Samuel Westray Battle,

Prominent physician of Asheville, N. C., died in a hospital in Raleigh, N. C., April 29th. He suffered a stroke of paralysis and never regained consciousness. He was educated at the University of Virginia and later at University and Bellevue Hospital Medical College, New York, graduating from the latter in 1875. Dr. Battle served for twenty years with the North Carolina National Guard, and retired several years ago with the rank of brigadier general. His widow and three children survive him.

Mrs. Elizabeth Potts Ryder,

Wife of Dr. O. A. Ryder, of Alexandria, Va., died April the 14th, after a short illness. Mrs. Ryder was an alumnus of Randolph-Macon Woman's College and a daughter of Dr. R. H. Potts, prominent Methodist minister in Virginia. Her husband and two young children survive her.

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SOME DEVELOPMENTS IN PUBLIC HEALTH.*

By R. W. GARNETT, M. D., Danville, Va.
Health Officer of Danville.

That phase of the science of medicine which deals specifically with the prevention of disease is of very recent growth. It took its beginning from those epoch-making discoveries of the 19th century in which the great French scientist, Louis Pasteur, was the leader. Up to his time the theory of medicine was based largely upon ages-old conceptions as to the etiology of disease, and the practice of medicine was characterized more as a speculative philosophy than by the spirit of experimental investigation. As some of you will recall, Pasteur was a chemist and not a physician. It was through his studies on wines and vinegars that he first demonstrated to the world the part played in the process of fermentation by minute forms of life and thus succeeded in refuting the generally accepted idea of "spontaneous generation." From his demonstration of the widespread presence in nature of these minute organisms, his next step was to show that a certain disease which was playing havoc with silk-worms was caused by minute forms of parasitic life, and by teaching the peasants how to control this pest through the proper selection of uninfected breeding stock, he saved France and other silk-growing countries untold loss. Later, in the study of anthrax, which was proving to be a great scourge to the live stock industry of his beloved France, he discovered the microbic cause of that disease and succeeded in working out an attenuated virus by means of which animals could be inoculated against the disease. The result of these studies had a tremendous effect on the thinking of the scientific world and struck the final death blow to the old spontaneous generation theory of the causation of disease. Pasteur thus laid the foundation for the modern science of bacteriology which has during the last half century completely revolutionized medical and surgical thinking and procedure.

The most practical outgrowth of this new teaching has been the science and art of preventive medicine and public health work. That the growth of public health knowledge has been astonishing may be illustrated by the well-known fact that the average sixth grade pupil in our modern public school system knows more about the causes of the communicable diseases and their control than did the most noted physicians of 100 years ago. Dr. Royal S. Copeland, former Health Commissioner of New York City and now a member of the United States Senate, made the official statement in 1921 that "generally speaking, where two persons died fifty years ago out of every 1,000 population, only one died in 1920." It is pointed out in a recent report of the United States Public Health Service that the average length of human life in the 16th century was estimated to be between eighteen and twenty years. At the close of the 18th century it was still less than twenty-five years, and as late as 1900 it was between forty-five and forty-eight years. Comparing with these figures the present average length of life estimated at 56 years in the United States, it is recalled that approximately fifteen years has been added to our span of life in this country since 1870. Fifty years ago we were losing during the first year of life nearly 200 out of every 1,000 babies born. Diphtheria was killing forty-five out of every 100 children who contracted the disease. The tuberculosis death-rate has been almost cut in half in the last quarter of a century. Typhoid fever is fast becoming a rare disease.

Within two generations the newer medicine and its offspring, the public health movement, have become important factors in our American life. There are indications that further gains will be made as the program of disease prevention and life extension is developed through the co-operation of the medical profession, the public and civil authorities. With every year that is added, the suffering and misery that accompany illness are minimized. These added years are productive and mean increased prosperity and well-being. At pres-

*Address of President delivered before the Virginia Public Health Association, at Richmond, February 16, 1927.

ent our average life span is twice that of the people of British India and of certain other backward countries. The gains to the public welfare resulting from the work done by the medical and public health professions during the last fifty years are incalculable. How can the medical profession and the public be taught to co-operate in the largest service to the community? The most outstanding single achievement in the past has been the reduction of infant mortality. As more and more emphasis is placed on prenatal care, on the discovery and treatment of syphilis in parents and on better obstetrical service, even greater gains will be made.

The communicable diseases, affecting children principally, are gradually coming under the control of the newer medical practice. The application of recently acquired knowledge regarding positive immunity, developed so successfully for diphtheria, is being extended to protect against scarlet fever and possibly against other children's diseases, and holds out great promise for the future.

In its beginning, organized public health work had to do almost entirely with measures designed to control the great panic producing epidemics through quarantine measures. In its next stage of development, the greatest emphasis was placed upon man's environment and much was said about the baneful effects of "miasms" and of breathing "night air", much of which is still with us, e. g., in the now misnomer, malaria. It is during the evolution of this stage, however, when we find the civil engineer coming to be an important factor in the working out of the great sanitary problems of drainage to prevent mosquito breeding, and of providing for a safe water supply and for the safe disposal of deleterious material,—problems made more difficult and costly by the rapid growth of American cities.

Today we find ourselves in a period when the emphasis is again shifting, for, although the importance of a good water supply and of sewage disposal must never be minimized, yet the health worker today is finding a most fertile field in personal hygiene, where the stress is placed not so much on man's environment as it is upon man himself. Therefore, with this direct rather than indirect approach, this stress upon human values, we find ourselves concerned today with not only a program of public health sanitation, but with public health clinics, public health nursing, the public health

laboratory and public health education. In the development of this program during the past decade, the process has been quickened by our war-time experience which served to focus National attention on certain startling facts. So, in recent years, much thought has been given to the correction of physical handicaps and defects of childhood, among which undernourishment is one of the chief,—conditions which are now known to be largely responsible for the fact that nearly one-third of the young men of our country were found to be unfit for military service. It may be truthfully said that, while this significant process of evolution has been going on in the thinking processes of the medical profession, progress almost equally significant has been going on in the minds of the people generally who are more and more seeing the truth of the maxim that "prevention is better than cure and far cheaper."

During recent years we have seen, too, a tendency toward greater socialization in medicine, as much as this term is disliked by many members of the medical profession. Contemporaneous with and partly as a result of this process, we find today so-called industrial medicine as a distinctly modern development. The best elements of the medical profession in any community are really interested in the prevention of disease and have always rendered valuable altruistic service in advice and in teaching the families who look to them for guidance.

But, in the face of these remarkable achievements, there remain certain conditions against which medicine seems, to date, to have been well nigh powerless. These are the diseases of middle life—heart disease, the diseases of the kidney and the blood vessels. They are usually comprehended, because of their inter-relationship, under the general term of cardio-vascular-renal diseases. They reflect the type of personal hygiene practiced by individuals.

The first years of this century gave clear indications of increasing rather than declining death rates from these conditions. Fortunately, however, in the years following the war, some interest appears to have developed in these conditions as causes of death, and there now seems to be a distinct possibility for a material reduction in their incidence. This is a great opportunity for the preventive medicine of the immediate future.

The first step is to develop an extensive plan

for detecting diseases which prey on persons in middle life, before they can do the damage which results in premature old age and death. The periodic medical examination is the most promising effort toward this end. Already thousands of persons are regarding such physical examinations in much the same way as the periodic examination of their teeth. Every day physicians have it in their power to aid their patients in adding years to their lives. Among 17,000 adult white males recently examined, some 13 per cent were found to be over-weight by more than 20 per cent above the usual standards for height and age, and over-weight is the most fruitful source of premature break-down of the heart, blood vessels and kidneys. Suspected focal infection was found in 42 per cent of these cases; more than a quarter of them had enlarged or septic tonsils. These are but samples of the findings, and suggest what a fertile field exists for substantial improvement in the life prospects of persons apparently in good health. Most of these persons became aware of their defects for the first time at these examinations. Fortunately, we have illustrations to show that the periodic health examinations do actually reduce sickness and mortality. For example, in 1914, the Metropolitan Life Insurance Co. inaugurated a system of free periodic health examinations for its ordinary policy holders. Six years later the after-history of the first 6,000 persons examined was studied. According to prevailing mortality tables, 303 deaths should have occurred in this group; and yet only 217 actually took place. This means a reduction of 28 per cent in the death rate, more than enough in reduced claim payments to pay for the cost of the examinations.

The situation, then, is at once a challenge and an opportunity for the medical profession. More and more must medical practice rely on the efficacy of thorough physical examinations. More and more these should become a routine for doctors at the request of the patient. Physicians will thus become counselors of their clientele, showing their patients how to avoid over-weight, how to conserve energy, and how to follow simple hygienic rules of living. But, to accomplish these ends, it will be necessary for the medical profession to develop generally better and more standardized technic for the physical examination.

The public must also co-operate, turning in larger measure to the family physician for ex-

aminations while well, not waiting for illness as an excuse for the first visit. The prevention of sickness is becoming rapidly a most important service which the public can receive and should expect from the family physician.

One of the outstanding public health statesmen of our country has said that all physicians may be divided into three groups: first, leaders; second, those who follow the leaders; third, those who absolutely commercialize their profession and see in it only a means of making money. He added that the public health worker must have the sympathy and support of the first two groups and that he must expect to always have the opposition of the last named group. In the minds of this latter, the question is constantly arising as to the encroachment of public health work upon the field of the private physician. As a matter of fact, while the public health movement has necessarily meant a reduction of the need for private medical service along certain lines, as, for example, in typhoid fever, it has, on the other hand, proven to be a positive means of promoting the work of high class physicians and of teaching the public to appreciate more than ever their service. Stress upon periodic physical examinations and the importance of seeking advice early before the break-down comes are today being given much emphasis. This means that teaching health truths, especially to the young, will serve to offset many of those hurtful influences of our modern living conditions and tend to promote a more vigorous type of manhood and womanhood. By that it will also mean the building up, rather than diminishing, the work of those physicians whose ideals are high and who are prepared to co-operate with the spirit and practice of preventive medicine.

The progress that Virginia has been making during recent years in Public Health work, as well as along other lines, should encourage us to look hopefully forward to the time when all of our counties as well as our cities will see the importance and the value of adequately financed and properly organized health work,—a time when every child born in Virginia shall have a fair chance of being well born and a fair chance to enjoy his birth right of unhampered mental and physical development.

Have we, the health workers of Virginia, then the courage and the vision to enable us to "carry on" patiently and persistently, and

perhaps ploddingly, looking to the consummation of that far off divine event toward which the whole creation moves, holding with Tenyson that:

"Through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the suns."

THE CORRECTION OF NASAL DEFORMITIES.*

By J. EASTMAN SHEEHAN, M. D., F. A. C. S.,
New York, N. Y.

Professor of Plastic Surgery, New York Post-Graduate Medical School and Hospital.

Before proceeding to the diagnosis of particular cases or describing the surgical procedures that have been devised for the correction of the more familiar deformities, it may be as well to be clear in our minds what is involved in a case of facial disfigurement. There are some in the profession who agree that the surgeon has the right to do what may be needed for the restoration of function but who claim that he oversteps his duty if he goes beyond the strict necessities. However, it is a sound surgical principle to diagnose in terms of loss, and the principle ought to be applied with understanding.

As the patient sees it, the loss here is three-fold. There is loss of function; there is detracton from his appearance; there may be loss of earning power. He is entitled to recover all three.

That dysfunction is a menace to health is conceded. The depression resulting from consciousness of a bad appearance is also injurious. The ability to find work is largely dependent upon others, and they are not invariably charitably minded. To be refused the opportunity to earn a living, to be debarred from the prospect of marriage, to be shut out from desirable social contacts, all are very serious matters. They must be taken into account when the correction is planned and at every stage of the procedure. It is the concern for these factors that has compelled the elaboration of those surgical methods which distinguish plastic from other surgery.

That is why it is a law of plastic surgery to avoid making new disfigurements. That is what underlies the devising of a whole range of expedients in suturing. That is what accounts for the constant effort to simplify the procedures. And for the same reason we have

been obliged to give intensive study to the skin-graft in terms of its physiology.

The whole tendency at present, as you will note during the clinical demonstrations, is to utilize the tissues of the nose itself, as much as possible, in effecting the correction, and to reduce to the minimum the use of materials from other parts. It is surprising how much can be done in this way in those cases where the disfigurement has been produced by a blow or other injury of like character. The flattened nasal bones are detached from the maxillae and raised and straightened. The cartilages are readily manipulated to give the bridge and alae their normal shape. Very often there can be taken from the distorted and swollen lateral cartilages enough material to fill any remaining depression on the bridge. If not, a bit of ear cartilage can be taken for the purpose. If the septum has been dislocated from its moorings by the force of the blow, something invariably followed by retraction of the columella and distortion at the tip of the nose, it can be re-established as a buttress for the bridge and made to support the columella by means of sutures placed obliquely and afterwards drawn straight, raising or lowering the tip as the case may be. By a slight angular excision from the septum the nose at the tip can be retracted and so shortened; or by advancing the strip so excised and enmeshing it in the columella the nose can be lengthened to normal.

It is not necessary, despite opinions to the contrary, to have two operations where it is required to resect the septum. The preferable method, both for the operator and the patient, is to correct any deflection of the septum at the same time as the rest of the repair. If the physical laws are respected in the remoulding of the nose there is no added danger, no increase in the period of hospitalization, and the patient is spared the repeated operations which he rightly dreads. This applies to young children as well as to others. It has been held by many that in case of injury to the nose at say five to seven years the septum ought not to be resected until about the age of thirteen, at which period the vomer is supposed to have attained its growth. The reasoning is not sound, for with the septum left in the distorted state the vomer does not normally develop.

In those cases where the methods of readjustment within the nose can be applied as de-

*An address delivered at Gill Memorial Hospital, Roanoke, Va., March 18, 1927.

scribed, patients leave the hospital in from three to four days, instead of ten days to two weeks as formerly.

Naturally there are cases that cannot be simplified to this extent. In those instances where the upper nose has been flattened by the blow while the lower parts have been left normal, there can be no recourse to the lateral cartilages for material to fill the depression on the bridge. Costal cartilage may have to be employed to restore the contour, unless the opening of the chest can be averted by the use of ear cartilage, which is not serviceable except in small depressions.

Similarly, where there is a defect on the surface, or one has to be made for the elimination of scar, it is evident that skin must be brought from somewhere. If the area to be covered is not too large the preferable method is to advance the skin from the adjacent cheek. Besides being the most easily accessible and the most adequately supported in the matter of blood supply, the skin of the cheek is the most perfect match available for the skin of the nose, a factor whose importance is increasingly recognized because of the influence upon the ultimate aesthetic result. If one must look elsewhere for the means of covering a small defect, the first recourse is to the skin of the upper eyelid, always provided there is no pigmentation, as there often is in the eyelid skin, that would cause a blemish in the new position. The upper eyelid can spare a surprisingly large proportion of its skin surface without injury, and a free graft from that area "takes" better than a similar graft from any other part. Secondary recourse is to the prepuce, or to the ear. Color is also to be considered in the first case; otherwise, the thin integument is very effective as a free graft.

If there is nothing for it, because of the size of the defect to be covered, but to bring down a pedicle flap carrying forehead skin, then the law against making new disfigurements dictates that the actual pedicle be lifted from the scalp, and that it carry no more of the hair-free forehead skin than is actually needed. In this way the scarring of the forehead is reduced to the minimum, and the hair covers any wound edges on the scalp after the pedicle is returned.

Notwithstanding that the lessons taught by experience are very definite, it is still necessary to insist that if any material is introduced among the nose tissues to support them in the

normal position, that material must be from the patient's own body. All foreign bodies are treated as enemies by the tissues and their certain expulsion is accompanied by abscess, infection, and the making of new disfigurements. Even when taken from the body of another there is danger, for it would seem that differences, chemical or cellular, assert themselves, under the slightest stress, with disastrous results. Costal cartilage is better than any other material for such implants. Its presence is not resented; it lives, and it does not disintegrate or absorb.

On no account whatever should paraffin be introduced into the tissues of the human body. Even the initial risks are startling, as was shown from the beginning of the practice thirty years ago, when blindness and embolisms gave warnings that ought to have been heeded. If this stage is passed in safety it is still positively certain that any paraffin injected will have to be surgically removed sooner or later—if, indeed, it can be.

If the paraffin is in one mass under the skin, there follows a low grade pressure inflammation, the mass becomes encapsulated with fibrotic tissue, and this condition may last for a long time. Sometimes the paraffin disseminates by divers pathways, the film of fibrous tissue around it undergoing change and setting up inflammation, which inflammation may cause a further spread of the material. From this condition it may go into a third stage, the material breaking up into pulverized and invisible particles which invade the meso-ectoderm, replacing the structures with fibrous tissues, devitalizing the skin, and resulting in inflammation, abscess, ulcer, and in some instances malignant degeneration. In the late stages embolism may occur. On exposure, if the paraffin is found to be encapsulated in one place it can be shelled out. But in the later stages the skin is seen to be changed to a dirty yellow color and an odd globule of oil may be noticed. Even before exposure the skin may be seen to be red or cyanosed as the result of circulation disturbance. As the skin has been destroyed, there is no good to be done by merely closing the incision; this will only produce inverted scar. The only course is to get rid of the dead skin and cover the defect so made with skin from another part.

Paraffinoma is appallingly on the increase. It is a disease artificially produced for which

there is not the slightest excuse to be offered by those who produce it.

A word about the incisions by means of which access is gained to the interior of the nose. The intra-nasal incision favored by some European schools is open to two objections. It obliges the operator to apply force on other than direct lines, which in practice has many disadvantages; and the location of the incision is needlessly favorable to infection, while making needlessly difficult its control. Much greater satisfaction is to be had by adopting a more direct method of approach. There are four available, according to the degree of operative difficulty. If the lateral cartilages are to be exposed and shifted, an incision within the nostril, following the curve of the alar rim and a little back of it, best serves the purpose. For somewhat more extensive separation, the columella is freed by an incision along its vertical axis interiorly and retracted to one side or the other. This allows the exercise of force on direct lines and leaves no visible scar. Or the incision may be from the surface through the vertical mid-line of the columella; with proper care in the suturing the scar here is negligible and tends to disappear. Or in special cases the columella may be completely disengaged at the philtrum and lifted out of the way. Here also the scar is negligible. With access to the nose effected in any of these ways the tissues can be manipulated safely and, a matter of much importance, speedily.

The syphilitic nose calls for special and separate mention. We all know the characteristic appearance. In the first stage the corrective procedure does not differ from that used for ordinary "saddle" nose. It is the second stage that has defied, until recently, all efforts to provide correction. With the membrane eroded by the disease and replaced by scar, contractile forces have had free play, with resulting distortion of the nose itself and invasion of the adjacent tissues, producing the characteristic facies, with the familiar hopeless expression. The key to the correction was found in the war hospitals, where the necessity of a lining was recognized, as before it had not been. Previous failure had been due to the non-observance of the importance of the function of the lining membrane. The problem was to replace it, and this has been done by means of the Thiersch graft, held in place by a prosthesis after elaborate preparation of

the bed to receive it. It may be a long and tedious process, but it constitutes nevertheless one of the real triumphs of plastic surgery. The third degree of the syphilitic condition involves the loss of all the elements, and the correction is equivalent to total rhinoplasty.

Skin-grafting is inseparable from the correction of nasal disfigurements. The subject is broad enough to take by itself more time than we have at disposal. It will be sufficient for the present purpose to indicate some considerations that press upon the notice of the operator in practice. There is some controversy as to the suitability of the epidermic (Thiersch) graft as a substitute for mucous membrane. Briefly, it is suitable within the nose, in the buccal cavity, in the antrum, and as a lining for the eye-socket, if it is cut so thin as really to be an epidermic graft. The appearance of hair, excessive desquamation, exudation of sebaceous excretions which become rancid and evil smelling, are signs that the graft has been cut too thick and includes a layer of the corium. Otherwise, the substitution for mucous membrane is well nigh perfect. It is not used, however, for replacement of the conjunctiva when the eye is in place; there a mucous membrane graft from the lip or from within the mouth is indicated. On the surface its two limitations are a contractile tendency and the development of a prune juice tint. But the "take" of the Thiersch, when its use is indicated, is 100 per cent.

The full-thickness graft is favored more and more because it can be taken from unexposed parts, thus conforming to the rule against making new disfigurements. At first there was only partial assurance of its "take", the average not much exceeding 50 per cent. Ferris Smith demonstrated that this was due to the application of improper amounts of pressure, and out of his experiments was evolved a method of maintaining the proper pressure, which he also determined (30 mm. mercury). Since then, especially with thin skin like that of the upper eyelid, uniform success can be confidently looked for. The drawback is that the skin of unexposed parts does not match that of the face, either in color or in texture. The red element in skin is determined by the amount of arterial blood held in the capillaries, obviously not the same in exposed and unexposed parts. The skin from covered areas never does quite assimilate; the habit of the tissue is not easily overcome.

If in all these particulars the method is dictated by regard for the ultimate aesthetic result, it follows that in suturing, so readily conducive to scar formation, the utmost refinement of method must be sought with a view to the optimum result. The extreme delicacy of some of the methods can best be appreciated in actual demonstration. The fact is, however, that in moderately favorable conditions it is difficult, after even a few days, to discern the line of organization.

Finally, it has been amply proved that the open wound condition should be reverted to just as soon as possible after the operation. The healing is quicker and better, the danger from infection less. Just as soon as may be, we dispense with the bandage and substitute the screened bed. Incidentally, it may be mentioned that the screen is very popular with patients, affording them a sense of semi-privacy by which they set great store. Treatments by real and artificial sunlight and other devices of light therapy are useful aids in presence of refractory conditions during the stage of after-treatment.

As to the bandage, in nasal operations such as have been described, the function assigned to it is to hold the parts in their new setting for 48 hours. By that time the processes of re-organization have been established, and the nose will maintain its position. The bandage can therefore be discarded, not to be renewed. Owing to the care exercised in separating the tissues in these procedures, and particularly in freeing the skin from the vessel-bearing tissues, there is so little ecchymosis that the patient can usually leave the hospital on the third or fourth day.

636 Fifth Avenue.

THE IMPORTANCE OF THE APPLICATION OF VITAMIN KNOWLEDGE DURING INFANCY AND CHILDHOOD.*

By W. AMBROSE MCGEE, B. S., M. D., Richmond, Va.

The general practitioner and pediatrician of today owe much to the science of biochemistry for the progressive increase in good results in the feeding of infants and children. Without the excellent achievements in research by biochemists, the progress of successful nutrition would still be in its infancy.

The knowledge that the newborn need cer-

tain constituents in their food, namely, carbohydrates, fats, proteins, salts and water in their proper relation, has been known for more than two decades. However, even with the different types of food present in the diet, scientists realized that something was frequently lacking in order for an individual to take advantage of what he or she had ingested. This something that was known to be lacking may, for sake of illustration, be compared with the proper function of an automobile.

An automobile may have plenty of oil and gasoline in the proper places and a competent driver at the wheel, but without a properly timed spark, the motor will run improperly and in so doing it will not function for its good. It is universally known that sparks accurately regulated are needed to make use of the automobile food. Likewise, a child may have enough carbohydrate, fat, protein, salt and water even in a purified state and in a well balanced proportion and yet his metabolism will not function properly. The factor lacking may be likened to the automobile, and like it, this deficient something could be termed the spark needed for proper metabolism. Just as bread is spoken of as the "staff of life," the deficient substance could be termed the "spark of life" or the spark needed for body construction.

The vast amount of publicity concerning these deficient substances or vitamins, as they are now termed, has led to an eager desire by the public for concentrated vitamin-rich foods. This popular interest has led to a commercial exploitation and unfortunately much capital has been realized since vitamins are now in vogue. No indiscriminate use should be made of vitamin knowledge, nor should vitamins be considered the chief cause of chronic malnutrition. We should only use them when indicated and wait for further research and time to determine their real place in nutrition.

For several years, three vitamins have been known of and have had an important position in the daily diets of different nations. These three vitamins are classified according to their solubility and they are designated by the first three letters of the English alphabet, namely, fat soluble A, water soluble B, and water soluble C. In more recent years (since 1922) two more vitamins have been added to

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the list,—fat soluble D, and vitamin E or X.² The knowledge that there are definite vitamins, even though their chemical nature is not definitely known, has led the human race to begin to realize the necessity of a variety of food, and has solved many problems in nutrition which formerly were considered obscure or were unsolved.

After the discovery of America, sailors began taking long voyages, and the death rate among them rose to a large figure due to a condition in which there was hemorrhage and fragility of bones and hemorrhage of the gums. This disease was given the name of scurvy and was greatly feared by navigators. The diet of the sailors affected usually was abundant in salted meats and lacking in vegetables. Even as late as the World War this disease was prevalent among German naval men who spent months' preying upon Allied Nations' vessels. The last of the German raiders was forced to come ashore for fresh foods as they had developed scurvy. The high death rate among men taking long sea voyages led to much investigation by medical authorities to find the cause of scurvy. In 1536, Jacques Cartier² suspicioned something lacking in the ship's diet and, after losing a large number of his party from scurvy, saved the remainder by use of an infusion of pine needles. It was not until 1747 that orange and lemon juice were found to be specific for scurvy. This specific was discovered by James Lind,³ a British Naval Surgeon, who also observed the beneficial effect of cows' milk in scurvy. Even though the use of orange and lemon juices has been known since Lind's time, there was a large death rate in the World War from scurvy due to the lack of knowledge of the dietary properties of foods among army and naval officers and mothers, especially among the latter in such countries as Russia and Armenia. Infantile scurvy was rarely mentioned before the use of artificial food, namely, cows' milk, in 1793, by Underwood.⁴ Experimental work has shown that not all animals or fowls are subject to scurvy, for rats and pigeons appear immune even on a diet that is known to be scurvy producing in other animals.

Another condition well known among certain nations, particularly countries in which rice furnishes a major part of the diet, is a deficiency disease called beri-beri. Cuerva⁵

(1923) says that as far back as 2600 B. C. the Chinese knew of this condition, and in the second century A. D. the Japanese described it as Kak-ki. Many theories have been advanced as to the etiology of beri-beri, but it was due to the untiring efforts of Eijkman,⁶ at Batavia (Dutch East Indies), in 1889, that the large consumption of polished rice was the food responsible for the condition. He found beri-beri could be cured by adding silverskin (the pericarp and germ or embryo of rice) to white rice. In experimental work it has been found that rats and pigeons can be protected from beri-beri or cured of the disease by feeding them the concentrated urine of man or dog. Carnivorous animals, such as lions and tigers, do not get beri-beri for, after killing their prey, they eat its liver and kidneys which serve as sources of the something that prevents polyneuritis.

At present there seem to be two forms of beri-beri,⁷ namely, the dry and wet types. In the former there usually is some emaciation, whereas, in the latter, dropsy is prominent, in fact so prominent that unfortunately that form is not sufficiently recognized from a standpoint of severity, for those affected are in imminent danger of immediate death. There is no kidney or heart disease and consequently the chemistry of the blood is negative. With the dry form there is an associated paralysis or polyneuritis and anorexia. The onset is rapid in wet beri-beri. Dry beri-beri seems to be due to a single deficient substance, namely, vitamin B, while the wet form appears to be due to a double deficiency, namely, vitamin B associated with a protein starvation. It is possible that maybe what is called and known as vitamin B might be more than one vitamin or that the vitamin responsible for wet beri-beri has not been definitely determined. Maybe the protein starvation is due to insufficiency of some of the eighteen or twenty amino acids (end products of protein digestion) rather than a real protein starvation. When certain of the amino acids are insufficient or absent⁸ (e. g., tryptophane), maintenance of life is impossible, while, when others are insufficient or lacking (e. g., lysin), maintenance is allowed, but growth is not permitted. Wet beri-beri is known by several names, dropsical beri-beri and war or famine or nutritional edema.

It was much later that another condition—

xerophthalmia—was discovered to belong to the class of deficiency diseases. In 1857, Livingston,⁹ during an exploration in Africa, described the hardships that his party endured while living on sugarless coffee, manioc roots and meal, and from exposure to the weather. He stated that the eyes of the party became affected. Spicer,¹⁰ in 1892, stated that following measles or whooping cough with bronchitis, when there had been a serious exhaustion, there not infrequently occurred large corneal ulcers. He also mentioned spontaneous sloughing of the cornea among nurslings where mothers practiced long religious diets. To overcome this eye condition and the drying and hardening of the eyeballs in those children and also night blindness, Spicer fed a high nitrogenous diet and cod-liver oil.

The brief historical references of scurvy, beri-beri and xerophthalmia, illustrate the need of certain food substances which, when deficient or absent, give rise to severe or moderately severe conditions. These three substances, or vitamins A, B and C, have been mentioned before.

Since 1922 two additions have been made to the class of vitamins, namely, vitamin D and vitamin E or X,¹ both of which have been discovered to be of value; especially is this true of vitamin D. The conditions with which its absence or deficiency is concerned have been known for many years. The large number of infants and children, especially those of the temperate zone, who have had poorly developed bones and teeth have been mentioned repeatedly in old medical literature. The skeletal development of those affected is slow and imperfect and the bones bend and break easily. For this condition the name rickets has been selected (this being derived from an old English word—wrikken, meaning to bend or twist). Associated with the imperfect skeletal structure there usually is found abnormality in size and shape of the cranium, chest and abdomen; a delay or imperfect formation of teeth and a frequency of dental decay. Likewise, it has been long known that rachitic children stand respiratory infections poorly. Much investigation for the correction and prevention of rickets and its associated conditions has been done and in the past few years the importance of another vitamin, namely, fat soluble D, has been brought to light.

Very little information has been published concerning vitamin E or X,¹ but studies by Evans and Bishop seem to show that this unknown substance is essential for reproduction.

Each vitamin appears to have a more or less definite physiological action; fat soluble A is growth promoting and anti-xerophthalmic, and seems to stimulate digestion and absorption of fats; water soluble B is also growth promoting and in addition is antineuritic; water soluble C is antiscorbutic; fat soluble D is antirachitic; and vitamin E or X is concerned with reproduction. In many instances, while a diet may be lacking or deficient in a certain vitamin, there will arise certain conditions or symptoms which cause more or less chronic disturbances. If in these cases the trouble is recognized and the specific vitamin given, a correction of the trouble will result.

When there is a deficiency of vitamin A, the individual seems predisposed to respiratory infections ("colds," bronchitis, pneumonia, etc.), and growth is retarded or delayed, and in some instances there is an associated loss of weight. Too little vitamin B gives rise to digestive disturbances (anorexia, indigestion, constipation), debility, cardiac hypertrophy, and a slightly subnormal blood pressure. A continued insufficiency of vitamin B may give rise to colitis, appendicitis, or gastro-intestinal ulcers, so Plimmer and Plimmer¹¹ advise. A shortage of vitamin C results in a sallow, muddy complexion, rheumatic like pains, headache, fatigue, irritability, and spongy painful gums. The mental attitude can well be illustrated by an occurrence in a large English preparatory school where Professor Hopkins¹² related an interesting story about the pupils in his school. It happened that his boys, who had been well behaved, became gradually irritable and listless and affected with other minor complaints. The cause was diligently sought, but could not be found. Careful examination of the boys and their surroundings revealed nothing and their food seemed adequate. However, it was soon discovered that the diet was lacking in uncooked foods and contained practically no greens. A near by store had closed just about the time the mental symptoms began, and this cut off the only source the boys had of obtaining any additional foods. The whole affair cleared up upon the addition of liberal

amounts of fresh fruits to the diet. The school apparently had been suffering from a mild form of scurvy. When vitamin D is inadequate in amount, the bones are poorly calcified (and consequently abnormality of shape is prominent), the teeth are softer than normal and have a tendency to decay easily, and the metabolism of calcium and phosphorus is thrown way out of balance, giving rise to tetany and allied spasmophilia tendencies as the result of the unbalanced calcium—phosphorus ratio. A shortage of vitamin E or X results in degenerative changes in the reproductive organs.

Fortunately, when there is a variety of food (even though the individual is grossly ignorant of the existence of vitamins) no ill effect from absence or insufficiency results because the great majority of natural foods contain an abundance or sufficient supply of vitamins. Some articles of our diet are known to contain more than one vitamin, while a few others contain two or more of these substances. While no one has yet been able to isolate a single vitamin or measure it quantitatively, experiments on rats, guinea pigs, birds, cows, and other animals, give a comparative value of the richness of the commoner foodstuffs in the different vitamins. In some instances, particularly with cod-liver oil, the vitamin-rich foodstuffs are assayed biologically, similarly to the manner in which the potency of digitalis is determined, namely, by the cat or frog method. The units of vitamin content are based upon the amount of the substance in question that is necessary to prevent signs of the vitamin deficiency in such animals as rats.

In a joint report of a committee from the Lister Institute and the Medical Research Committee,¹³ the following approximate vitamin values were given. A 1 indicates a fair source of the vitamin in question, while 2 means a good source, and 3 an excellent one. Only a few of the foods are listed below, but these will give a fair idea of the vitamin content of the commoner articles of our diets.

NAME OF FOOD	VITAMIN A	VITAMIN B	VITAMIN C
Butter	3		
Cream	2		
Cod-liver Oil	3		
Mutton Fat	2		
Lean Meat	1	1	
Liver	2	2	
Kidneys	2	1	
Fresh Fat	2		

Milk, whole cow's raw	2	1	1
Milk, condensed,	1	1	1?
sweetened	1	1	1?
Milk, dried	2	1	1
Milk, boiled	1?	1	1?
Milk, skimmed, raw		1	1
Cheese, whole milk	1		
Eggs, fresh	2	3	
Eggs, dried	2	3	
Wheat, maize, rice,			
whole grain	1	1	
Wheat, germ	2	3	
Wheat, maize, bran		2	
Vegetables:			
Cabbage, fresh, raw	2	1	3
Lettuce	2	1	
Spinach, dried	2	1	
Carrots, fresh, raw	1	1	1
Carrots, dried	1?		
Potatoes, raw	1	1	
Potatoes, cooked			1
Tomatoes, canned			2
Beans, fresh, raw			2
Fruits:			
Orange Juice			3
Lemon Juice			3
Bananas	1	1	
Nuts	1	2	
Miscellaneous:			
Yeast, dried		3	
Yeast, extract and			
autolyzed		3	
Malt Extract		1	

There is a close relation between vitamins A and D; whatever foods are rich in A are usually correspondingly plentiful in D. Foods containing vitamin E or X are cream, whole wheat grain, lettuce, meat and wheat germ oil, the latter being especially effective in relieving sterility.

While mentioning foods rich in vitamins, it might be well to name those in which none are found. This list is published by the same joint committee¹³ that tabulated the vitamin-rich food. The following substances contain no vitamins:

Lard.
Olive, cottonmeal, cocoanut or linseed oils.
Coco butter.
Hardened fats, animal or vegetable in origin.
Margarin from vegetable fats or lard.
Cheese from skim milk.
Polished rice, white wheaten flour, pure corn-flour, etc.
Custard powders, egg substitutes, prepared from cereal products.
Pea-flour (kilned).
Meat extract.
Beer.

From the table of foods containing one or more vitamins, we can see that heating has some effect on the vitamin, as is illustrated by

condensed milk. In addition, the list reveals to us the importance of using butter rather than the usual butter substitutes. The difference in vitamin content between raw and cooked foods is well demonstrated by the list

STABILITY	FAT SOLUBLE A	WATER SOLUBLE B	WATER SOLUBLE C
To Temperature:	Stable at 100 C.; probably stable at 140 C.	Comparatively stable at 100 C.; slowly destroyed at 120 C. and above.	Gradually destroyed above 50 C.; rapidly destroyed above 80 C.
To Alkali:	Stable in cold, possibly in hot.	Slowly destroyed in cold, rapidly in hot.	Rapid destruction even in cold.
To Acids:	Probably stable.	Comparatively stable.	Comparatively stable below 50 C.

In heating foods, it appears to be the effect of oxidation rather than the heat which determines the resulting vitamin value of the food. Thus, heating foods without access to air (as tomatoes in a sealed can) for a few minutes apparently does not destroy the vitamin content. This has likewise been found true in heating milk, for it has been proven that it is better to boil milk without access to air for a few minutes rather than to pasteurize it at a lower temperature for a much longer period of time.

Besides the effect of temperature or acids or alkalis, one must consider the season in which the food is secured. It has been proven that summer grown cabbage is very rich in vitamin C, while winter cabbage is lacking in the same vitamin. Likewise, it has been demonstrated by Reyher¹⁵ that changing infants from milk of cows fed on green fodder to milk from cows fed on dry fodder results in a cessation of gain in weight. This is also apparently the result of an absence or deficiency in vitamin C. Possibly this may be due to an insufficiency of sunlight (actinic rays) in winter as is seen in the case of rickets which is known to be more prevalent in the colder months.

Proprietary foods are often harmful since they may be lacking in one or all three of the common vitamins. Diets composed largely of fats, sugar and proteins, as is usually found among the richer classes, is usually deficient in vitamin B. The diet of the poorer classes is composed largely of starch, sugars and protein with a deficiency usually of all vitamins, especially B and C. Where there is an improper diet among adults, it is only natural that the childrens' diets will also be poor in vitamins.

published by the joint committee referred to above. This brings up the question of stability of vitamins in regards to temperature, acidity, and alkalinity. Rosenau¹⁴ summarizes the effect of heat upon them as follows:

The graphic representation of a "Square Meal," as presented by R. H. A. and Violet G. Plimmer¹¹ is an excellent practical method of presenting the idea of the importance of vitamins in the diet to the public. They place a circle in a square and designate the corners (outside of the circle) as the substances containing vitamins A, B, C and D (vitamin A and D are both included under A) and protein, while in the circle the diet is composed of carbohydrates, fats, salts and water. By means of this arrangement they cleverly illustrate and state what happens when one or more vitamins are deficient or absent and when the diet is excessive in fats or carbohydrates.

Nature, realizing that the diets of infants and young children are composed largely of milk, incorporated all five vitamins in this almost perfect food. Since so many cows have been found to have tuberculosis, pasteurization of cows' milk has become very common. As mentioned above, oxidation of vitamins (especially vitamin C in case of milk) tends to destroy them, whereas boiling (in a vessel away from air) for a few minutes does not effect the whole cows' milk. It thus seems reasonable to boil cows' milk rather than to pasteurize it. Powdered milk seems to compare favorably from the standpoint of vitamins (and also from food viewpoint, namely, breaking of fat globules and preventing large tough curds) with boiled milk. Since milk is known to contain only a small quantity of vitamin C, it is wise to add this before the onset of scurvy (six months or older). Vitamin C can be given with advantage to an artificially fed child as well as one nourished by its mother as early as the first month. The foods of choice that are rich in that

vitamin are orange, lemon and tomato juices. In case these are not obtainable or tolerated, spinach, carrots (raw) and cabbage (summer) juices may be substituted.¹⁶ It is on account of these juices that scurvy is now almost rare among infants and young children.

Inasmuch as rickets is so prevalent, it is wise to give an infant vitamin D at an early date, for rickets appears much earlier than was formerly believed; especially is this true among prematures, Italians and Negroes. This substance can be abundantly supplied by means of pure unadulterated standardized cod-liver oil as manufactured by large reputable firms. Cod-liver oil is rich in vitamin A as well as D, and, in addition to preventing rickets, promotes growth and prevents carious teeth. In addition, research by Cramer, Drew and Mottram¹⁷ (1922) showed vitamin A increased the number of platlets in the circulation. A deficiency or absence of that vitamin (A) gave rise to a thrombopenia. It is possible that maybe circulatory disturbances due to low platlet count (e. g., purpura) may be benefited by vitamin A, and the early use may serve as a prophylaxis against thrombopenia. Associated with rickets are respiratory infections, and since cod-liver oil is antagonistic to both conditions, it seems plausible that it would lower the incidence of respiratory infections if begun early. At present the oil is advantageously begun when the infant is only a few days old; this is especially true for prematures, Negroes and Italians. The cod-liver oil is started with only one drop three times daily, and then gradually increased one or two drops a day till one-half to a whole teaspoonful is reached; then the dose is not increased further. Infants and young children fed the oil have excellent type of teeth and enamel and cavities are infrequent. From the use of cod-liver oil the close relation between vitamin A and D is observed. The latter regulates calcium and phosphorus metabolism, and it is in this way that normal bones and good teeth result. Of course, to regulate the calcium and phosphorus metabolism we must select food rich in calcium (e. g., milk, cabbage, carrots) and phosphorus (e. g., egg yolk, fish).

A diet rich in vitamin B is highly desired, for the substance seems to be associated with an increase in appetite and, if absent, appears to result in lymphatic atrophy, as shown by

Cramer, Drew and Mottram,¹⁷ in 1921. These men found that hypothrepsia and athrepsia were associated with an absence of vitamin B. Thus, when we meet with subnormal infants and children, it would be worth while to feed them foods rich in that vitamin and then observe the effects on the malnutrition as well as their appetite. It is unfortunate that people in this country consume so small a quantity of whole wheat flour and other whole grain products, for these foods along with eggs, peas, and yeast are the richest source of vitamin B. The use of whole grain products and natural simple foods are of distinct advantage,¹¹ as has been observed among races whose diets consist of such types of food, for those people are practically free from the disorders associated with a shortage of vitamin B, namely, digestive disturbances.

Among nurslings who are not progressing favorably, we should diligently inquire into their mothers' diets, for it is possible and probable that she is getting insufficient vitamins. If such be the case, an addition of these substances will not only improve her physical and mental condition, but also that of her child. The mother should always have an ample supply of green and leafy vegetables, whole grain cereals, and dairy supplies. It might be that an inquiry into the infant's or child's diet may reveal an insufficiency of vitamins and by feeding those lacking, we will soon see a decided improvement. This is often seen when an infant who has been fed for a long while on skimmed milk is given cream (whole milk) or cod-liver oil, for the addition of the cream or oil serves as a source of vitamin A and there is a rapid gain in weight and a general improvement.

Closely allied with deficiency diseases are two conditions which appear to belong to that classification. These conditions are pellegra and celiac disease; the former is rather uncommon among children, whereas, the latter is much commoner during childhood. Celiac disease is known by a number of different names, the commoner ones being, chronic intestinal indigestion, chronic fat intolerance, intestinal infantilism, intestinal atrophy with dilatation, intestinal insufficiency, and pancreatic infantilism.

Pellegra has been cited in older literature and the majority of cases in which nursing mothers have suffered with the disease show

a small incidence among their infants. Analysis of human milk in those having pellegra does not show any toxic substance. As a rule, the mothers' diet is poor in protein and vitamins and comparatively rich in carbohydrates and fats. By means of a diet rich in fresh vegetables, meats, eggs, milks and whole grain products, Goldberger¹⁸ (1914) was able to prevent or cure pellegra. In its intestinal symptoms (diarrhea, enteritis, ulceration and hemorrhage) pellegra is analogous to scurvy. Likewise, there is a similarity between pellegra and beri-beri in the lesions of the nervous system (Roberts,¹⁹ 1912), namely, a scattered degeneration of the motor cells in the spinal cord. Whether the good results in treating pellegra are due to the freshness of the meats, milk or vegetables or to the increased protein consumption is unsettled, but the close relation it bears to scurvy and beri-beri leads one to believe that there might be a vitamin deficiency—possibly B or C, or a combination of the two vitamins. Then it is also possible that it may later be proven to be due to a deficiency in the eighteen or twenty known amino acids (end products of protein digestion) or to an inability of the individual's intestines to absorb or assimilate the amino acids.

The other possible deficiency disorder, celiac disease, has not been properly understood until in the past few years, and even now just why cases respond to certain routine is not definitely known. It appears to be absent in infants nursed by their mothers and when present in those fed upon cows' milk, celiac disease begins after six months—the time when the milk diet is usually supplemented by other foods, particularly carbohydrates. The fact that cases of celiac disease respond to protein therapy suggests similarity to pellegra, while good results following feeding with bananas²⁰ make it appear as if there is some unknown vitamin present in that fruit, and since it is known to contain only vitamin A and B, maybe it is one or both of them that are lacking or deficient. It is also possible that a sixth and unknown vitamin is the causative factor, and in keeping with the letters of the English alphabet it could be referred to as vitamin F. In Vancouver,²¹ Canada, research work is being done to see if there is not some similarity between diabetes mellitus and celiac disease. Results

thus far seem to indicate that the latter condition responds favorably to insulin injections. While no doubt very hypothetical, one cannot help being carried on by his imagination in wondering if, in addition to its effect on carbohydrate metabolism, insulin has any vitamin properties or, if vitamins act in any manner similar to products of internal secretion. The fact that diabetics are unable to take care of the carbohydrates in the body (like a normal person can do) and that celiac disease usually responds fatally to a continuation of a high carbohydrate and low protein diet, seems to suggest a possible similarity between the two conditions. Perhaps vitamin enthusiasm has led us far astray; then, on the other hand, maybe we have an additional clue for further investigation.

SUMMARY AND COMMENT.

The introduction of vitamins into nutrition has served as a stimulus to further research work in foods, and the science of nutrition has thereby been placed on a higher scientific basis. The recognition of conditions due to a lack or deficiency of one or more of the known vitamins is often spectacular after applying the therapeutic test. It is now clearly seen that even though the diet contains a sufficient quantity of carbohydrates, fats, proteins, salts and water, nutrition will not progress favorably for the individual. Fortunately, the commoner foodstuffs contain a sufficient supply of vitamins to prevent deficiency disturbances, but among infants and young children where there is not much variety, the application of vitamin knowledge is essential for a better race.

Each vitamin has a proper place and an excess of one does not make up for a deficiency of another. The education of the public by simple tables or illustrations, as the square meal by the Plimmers,¹¹ and a variation in size and health of animals and people deprived of vitamins will educate them sufficiently to choose proper food and will serve to defeat the commercialization of vitamin rich food for sake of capital. Mothers should be told why different substances, such as orange or tomato juice, cod-liver oil, fresh green vegetables, etc., are added to the diet, for, knowing the reason, they will probably be more careful in selecting their foods. Vitamin knowledge has taught us the necessity of se-

lecting a variation in our diets. Conditions such as pellagra and celiac disease make one appreciate the use of fresh foods and diets containing all of the amino acids. The practical use of each vitamin is important for, without vitamins A and B, growth is retarded; without B, polyneuritis results; absence of C is followed by scurvy; a deprivation of D gives rise to rickets and poorly developed and carious teeth; and absence of E results in sterility or degenerative changes in the reproductive organs. Research and practical experience with vitamin D has brought to our attention the fallacy of thinking oral hygiene alone will result in better teeth and less decay. Vitamin knowledge has shown that this will only result from use of vitamin D, but the use of that vitamin with a liberal supply of calcium and phosphorus in their proper relations, and oral hygiene is a more ideal combination for the advancement of better teeth and less decay. Instead of appropriating large sums of money to correct dental caries, why not invest it for a more rational use, namely, to educate the public concerning the application of vitamin knowledge and to promote further research? Vitamins bear the same relation to the known deficiency diseases, as diphtheria and tetanus antitoxins do to diphtheria and tetanus, respectively.

From the newer knowledge of vitamins, we learn that respiratory infections may be decreased and night blindness cured by the use of vitamin A; that appetite and increase of lymphocytes results from the employment of vitamin B; that irritability may be lessened when vitamin C is present; and that better formed bones and teeth and less caries follow the use of vitamin D. The old idea that if we let our appetite be our guide in the selection of food is now realized to be erroneous, for when human beings are left to select their own diets, such factors as price, attractiveness, taste, length of time to prepare, etc., are considered rather than the real value of the foods. Experience with children as well as adults has shown that if we eat everything that appeals to us, soon nothing will tempt our appetite.

When a man decides to have a home built, he does not select his own materials with which to construct his house,—that he leaves to an expert. The human body needs materials to build it and keep it working to the best ad-

vantage, but usually no expert is employed to select the articles of food that should be eaten. Likewise, the employment of energy quotient or calories or percentage feeding is not all that is needed to constitute a balanced diet; these agencies of computing theoretical body needs should be used in conjunction with other factors, as to whether or not there is an ample supply of natural simple foods or fresh vegetables or dairy products or of vitamins. The tendency to using the majority of grains in their unnatural state is regrettable; especially is this true in the use of white flour in place of whole wheat. Grains are one of our chief sources of vitamin B, but after the products are refined or polished, this virtue is lost. Then there is danger in a faddist diet, as that of a vegetarian, for he cannot consume properly balanced foods unless a large quantity of leafy vegetables are ingested daily, and this is not the rule with vegetarians.

A knowledge of the proper constituents of foods is necessary for a better race, and if the knowledge is applied before an infant is born, his chances of living are much greater, and, in turn, the mother is better equipped to care for her child. The young child's diet is controlled in a great measure by that of his parents, and if they eat a monotonous diet, the chances are great that he or she will consume a similar diet.

Infants and children are more concerned than adults about the proper foods and vitamins,²² for they are more likely to suffer, since, during that stage of life, human beings are more susceptible to adverse conditions and since growth is so important during the earlier years of life. Besides, infants and young children necessarily have a limited number of foods to select from; so it is all the more important that their diet should be properly balanced, especially with reference to all of the amino acids and vitamins.

The information gained from the study of vitamins points to us the great advantage that lies in fresh milk, meat, and vegetables, and fruits, and whole grain cereals, especially when these foods are in their natural state. If the daily diet contains these substances in adequate amounts, we are in no danger of disease or disturbances from lack or deficiency of vitamins. The one indispensable food is milk, for it is this food that contains some of all

five vitamins, and investigations, by McCollum and Simmonds,⁷ have shown that countries consuming large daily quantities of milk (pint to a quart) and its dairy products are the strongest races both intellectually and physically.

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West End Medical Building.

AN OUTLINE OF PRESENT-DAY TREATMENT OF TUBERCULOSIS.*

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"The Treatment of Tuberculosis" is a big subject, and to deal with every aspect of it

would require too much time and an undue indulgence of your patience. Only a brief outline will be presented here.

The treatment of symptoms and complications will, therefore, be omitted and only the pulmonary form of the disease be considered in a general way. We often think the diagnosis is hard, but in most instances the real difficulty comes with the frank talk with the patient which must inevitably follow the examination. The patient wants to know, and justly so, what his or her chances are for recovery; how long it will take; how much it will cost; and whether he should seek some other climate or cast his lot in the home state. The question of time is the first "bitter pill" to be swallowed by the patient. He must be told frankly in the beginning that there is no "get-well-quick" road in tuberculosis, and that there is no choice of speed in the process of recovery. If the treatment is to be conducted to a successful termination, it must of necessity be over a long period of time. This disease differs from those which are more acute in their course, and a clear understanding must be established in the beginning between physician, nurse and patient. Tuberculosis is, in most instances, a chronic disease, characterized by alternating periods of quiescence and exacerbations; and often just when the patient thinks he has about recovered, there will come a relapse which is demoralizing, and will shake the faith of the most stable individual. Under such conditions, to stimulate the reserve vim and will power is not an easy matter. It may be safely said that at least 75 per cent of the treatment of tuberculosis depends upon the patient. This being the case, the patient must be impressed in the very beginning with the importance of will power and determination; earnestness of purpose; cheerfulness and patience; intelligence and interest. Surely none of these are so difficult of understanding or accomplishment that they cannot be carried out by any patient who is anxious to recover.

The three most important principles in treating tuberculosis of the lungs are:

First.—The steps necessary to be taken for the most rapid and the most economical recovery from the disease.

Second.—A thorough knowledge of the disease which includes a knowledge how to stay well after recovery, and how to avoid the things responsible for relapse.

*Read before the Conference of Virginia Public Health Workers in session at Richmond, February 14-19, 1927.

Third.—Education in the prevention of the spread of the disease.

When the patient understands that his infection is the direct result of carelessness on the part of someone suffering from the disease, he will usually gladly welcome instructions tending to prevent further transmission. Too much emphasis cannot be placed on the necessity of covering the mouth and nose with a gauze handkerchief when coughing and sneezing, and of expectorating only in a sputum cup.

After explaining to the patient the extent and character of his disease, and looking after the psychological aspect, as mentioned above, there comes the duty of dealing with the fundamental and long considered cardinal factors in treating this disease. They are rest, good food, and fresh air. Whether the treatment is conducted in the home or in a sanatorium, the importance and ultimate results are the same, if the patient is earnest, determined and co-operative in his efforts. All three of these factors are important, but the first two seem to have the greatest significance. Let us consider them in order:

REST

Rest, and by this is meant both physical and mental relaxation, is by far the most important factor in the treatment of tuberculosis. The patient must feel this importance in the beginning. The body is overwhelmed with tuberculous toxins; constitutional impairment has taken place; and if recovery is going to be brought about, there must be rest and all that goes with it. The patient who habitually insists that he can keep going and refuses to rest, will never regain health. It is a generally accepted fact today that, regardless of how slight the lesion, and how few the symptoms, the patient with tuberculosis has a greater chance for recovery if put strictly to bed for a period of from three to four months. Symptoms have in the past governed, to a great extent, the amount of time the patient has to spend in bed. Unless he runs a fever of 100, a pulse rate of 100 or over, or is spitting blood, he is generally permitted to get up and go to meals, and perhaps take exercise. It is the standing order at Blue Ridge Sanatorium that any patient with a maximum temperature of 99.6, or a pulse rate of 90 or over, must be in to all meals, but if carrying a temperature of 100, he must be made a bed patient. We have,

however, some patients who have no fever but who are required to remain strictly in bed because of the type of lesion they have. We have found that the exudative type and caseous-broncho-pneumonic forms of the disease, seen mostly in young adults, will, if the patient be kept in bed, often undergo resolution and absorption, with good recovery. On the other hand, the chronic fibro-caseous types, usually seen in people past middle age, have fewer symptoms, are not so sick, and will get a fair repair without so much time spent in bed. We may infer from this that not only symptoms, but extent and type of pulmonary disease must be known for the patient to be successfully treated. The case that has had marked symptoms and extensive pathology should, we believe, have several weeks complete rest in bed, even after all symptoms have disappeared and there is a feeling of well being on the part of the patient. It must be remembered that the tissues of the body have undergone much impairment by the circulating toxins; and even after the clinical course has abated, more time is required for their reaction to normalcy if relapse is to be avoided.

DIET

The period of "stuffing" raw eggs, pure cream and cod-liver oil has fortunately passed in the treatment of tuberculosis. This kind of feeding was found to be harmful, and more moderate measures are now employed. The main object is to get the patient a few pounds above the standard weight. It is not necessary to get excessively fat to recover from this disease. Some of our best results are accomplished in cases that have gained only a small amount of weight. There has been much dispute over the articles of food to be included in the diet of tuberculous patients. It was first thought a diet high in protein was necessary in treating tuberculosis to replace tissue destroyed by the disease. The theory was that much protein in the diet stimulated the formation of scar tissue, and in this way walled off the diseased areas. We now know this idea to be incorrect, because the best way for tuberculosis to heal is not by the formation of scar tissue, or calcification; but by resolution and absorption, with a complete disappearance of the diseased foci. Thirty to forty grams of protein in the diet, according to Kellogg, is sufficient for body needs in the average case; and any excess above this amount has to be

eliminated by the kidneys, thereby overtaxing these organs, which are already being overworked by assisting with the elimination of the tuberculous toxins. Autopsies performed at the Phipps Institute, Philadelphia, on people who died of pulmonary tuberculosis, show more than 80 per cent had kidney impairment. Animal proteins are more irritating than vegetable proteins, and it is considered advisable for the average tuberculous patient to eat meat only once daily. Carbohydrates produce heat and energy, are relatively easily digested, and are the body's greatest resource in replacing lost weight. Therefore, it would seem advisable that the bulk of the diet should consist of this type of food. Fats, if taken in excess, irritate the mucous membrane of the stomach and retard digestion. Fats, however, in emulsified form, such as in milk and egg yolk are most easily handled. Fruits should be given in abundance since they require little digestion, and the nutrient portion consists of simple sugars. One of the chief objects in treating tuberculosis is the elimination of toxins, and a diet must consist of foods which stimulate peristalsis of the intestines to the extent of producing at least two bowel movements daily. Since fruit juices have a laxative effect, fruits will be of much assistance in this respect. Vegetables, high in cellulose, also help to overcome constipation by giving bulk to the alimentary canal. Mineral matter and the essential vitamins are taken into the body in most all the foods; the green leafy vegetables, milk, fruits and eggs probably heading the list. With the average patient one quart of milk daily is sufficient, and this is best given either with the meals or immediately afterwards. Eggs may be included in the diet, according to the patient's desires, but should not be given raw or between meals. On the whole, then, I would say that the diet should consist of staple foods, not so rich as to be indigestible, and they should be as varied as possible, well cooked, and attractively served.

FRESH AIR

In conjunction with rest and diet, fresh air, both day and night, is absolutely essential. The progress of tuberculosis is aided by insufficient ventilation, and, conversely, is interfered with by an abundance of "outdoors". The principal effects of fresh air are to tone up the body by its stimulating effect on the skin, and to supply the blood in the lungs with

the necessary amount of oxygen to be carried throughout the body. Through its stimulating effects, metabolism is improved, and there is a greater elimination of toxins. Weather conditions will, of course, have to be taken into account. Warm sleeping garments for winter are necessary, and external heat in the form of hot water bottles and stone "pigs" may have to be used for comfort.

These are the important points in the care of tuberculous patients for the physician and nurse to observe, and have stood the test of time. Others worthy of mention have value as a correlation and must be used in selected cases. They are pneumothorax, heliotherapy, surgical collapse and tuberculin therapy.

PNEUMOTHORAX

Pneumothorax, or lung compression, was used as far back as 1825, but it was not until about twenty years ago that its use became more common and its value recognized. Today almost all tuberculosis institutions are using it to advantage. The principle is sound, the technique simple, and procedure relatively safe in the hands of those experienced in the use of it. Physiological rest of the diseased lung by the compression and consequent reduction of absorption of toxic materials are the chief attainments to be desired. It may be safely said that the majority of consumptives who die have at some time been suitable for lung collapse, and could have been benefited by this treatment. Much judgment must be exercised in the selection of cases for pneumothorax or its use will fall into disrepute. The patient should be placed in a hospital or sanatorium during the period that the lung is being collapsed.

Collapse is indicated when the disease is confined mostly to one lung and no material improvement has been made after a trial by the usual measures of routine treatment as outlined above; it is also indicated for the control of pulmonary hemorrhage, and for certain tuberculous complications, such as tuberculosis of the throat. Any type of the disease may, of course, be collapsed, but in the hands of the most experienced men, the chronic-fibroid seems to be the best to select.

Recent advances in X-ray technique have enlarged the scope of this work. The study of stereoscopic films helps to determine definitely the condition of the opposite lung, and in locating the most probable area of free pleural

space on the side considered for collapse. The fluoroscopic screen is an invaluable aid in determining the extent of the collapse, and any displacement of the mediastinal structures which may take place from pressure.

For the past two or three years we have averaged giving 10 per cent of our patients at Blue Ridge this treatment. Our work recently reviewed and tabulated shows 87 per cent of the cases attempted were successfully collapsed. Pleural adhesions, or lack of free pleural space was responsible for failure in the remaining 13 per cent. Of the sixty-six cases successfully collapsed, forty-six, or 73 per cent, were definitely benefited. The remaining 27 per cent were not improved, and the treatment had to be discontinued due to extension of disease in the opposite lung. Seventeen cases in this group were given pneumothorax for the control of hemorrhage, all of which were successful. So it will be seen that this form of treatment is of decided value, and bids fair to have a greater success in the future.

THORACOPLASTY

Thoracoplasty is of recent development, and has as its principle the same as that of pneumothorax, namely, the collapse of the lung. The operation consists of sectioning the ribs near the vertebral column, and when the cut ends are brought together by pressure, the lung is collapsed. The complete operation is done in two or three stages according to indications for it and the condition of the patient. It is a substitute for pneumothorax, and is used only when the latter has proved impossible or a failure. Thoracoplasty is less desirable, because once the operation has been performed, the lung is permanently collapsed, and there is no future hope for expansion. In pneumothorax, if there is an extension of disease in the opposite lung, the refills may be discontinued and the lung allowed to expand. Some patients, however, detest the idea of the needle, or do not want to stay in the Sanatorium, where this treatment is best given. Under such conditions, thoracoplasty may be the choice operation. Once the lung is surgically collapsed, the patient may return home and continue the usual treatment there. To date, five of our patients have had this operation at the University of Virginia Hospital. Four were markedly benefited, three of which have returned home and are working. The fifth has

improved but continues treatment in the Sanatorium.

Section of the phrenic nerve, or phrenicotomy, as it is called, is of great assistance in both pneumothorax and thoracoplasty. It will be recalled that the chief muscle of respiration is the diaphragm, and that it derives its nerve supply from the phrenic. When this nerve is sectioned on one side, the diaphragm becomes paralyzed, elevated, and fixed on that side. By rising in the thorax two or three inches, pressure is exerted on the base of the lung, and the disease tissue in that portion may be collapsed. Basal lesions are helped in this way. Of the above mentioned cases of thoracoplasty, one had a phrenicotomy preliminary to lung collapse.

HELIO THERAPY

No discussion of the treatment of tuberculosis today is complete without the consideration of sunlight. Rollier, in Switzerland, who is the father of sunlight treatment, has for more than twenty years been treating bone, joint, and glandular tuberculosis with success. He reasons that if it helps these forms of tuberculosis, it must be equally as good for the pulmonary type. He has many followers in this country, LoGrosso, of Perrysburg, N. Y., probably being the foremost.

By graduated exposures of the naked body to the sun's rays, the skin gradually takes on a bronze hue. Following this, there comes a copper color, and, finally, a chocolate brown. This is called pigmentation, and the intensity of pigmentation usually governs the final results of treatment. Little or no results are noted until pigmentation, or tanning, has taken place. The results are in the form of an increase in the red blood cells and hemoglobin content, metabolism is increased, the patient rapidly takes on weight, and the symptoms gradually disappear. The mental attitude of the patient changes from depression to cheerfulness and animation. Any tuberculous process, whether located in the lungs or elsewhere, has constitutional manifestation, and any successful treatment must be general as well as local. Solar treatment has both qualities. The quartz light, while deficient in the solar spectrum, is a fairly good substitute and is much employed today. At the Sanatorium we have six Alpine lamps, which are constantly in use. For the past two years 191 patients have been treated, and 71.4 per cent of these were

benefited. Our children get the sunlight treatment, which we feel is more beneficial. Arrangements are now being made for the adult patients to get it too.

CHEMOTHERAPY

Chemotherapy deserves only brief mention. No drug has been found to be of definite value in treating tuberculosis. Chaulmoogra oil was hailed five years ago as a specific. It was found to cure incipient leprosy and thought to dissolve the waxy capsule of the tubercle bacillus, and in this way give the resisting forces of the body a chance to destroy it. It proved to be of no value. Nowland, in Pennsylvania, only a few years ago fattened his purse by announcing through the daily press a cure for tuberculosis. It consisted of inhalation by the Nowland nebulizer of finely powdered carbon, which was supposed to settle around the diseased areas in the lungs and calcify them. It, like Chaulmoogra oil, was of no value, and enjoyed only a brief stay. Recently we have been much concerned by the announcement from Professor Moellgaardt, of Denmark, that he had a cure for tuberculosis in the form of a gold salt—sanocrysin. This, coming from a man of some ability, and apparently worked out along scientific lines with experimental animals, raised the hopes of many. However, the best investigators in this country and Europe cannot duplicate his work, and there is every indication now that it must go the route that all others in this class have gone.

TUBERCULIN THERAPY

In 1895 when Koch discovered tuberculin, it was thought to be a sure cure for tuberculosis and that the battle had been won. People afflicted with the disease rushed forward and received massive doses of tuberculin subcutaneously. There was produced by this severe inflammatory changes at the site of the lesion in the lungs, the body was overwhelmed with toxins, and a severe reaction took place. The outcome to many was fatal. The dose was then reduced and more judgment exercised in selecting the cases, and it did seem to have some value in producing tolerance to the toxins through stimulation of the body's juices. Today it is not used much, especially in the pulmonary cases, because of the violent reaction it may cause. Even in the hands of experienced men, no one can tell when a severe

reaction may come. Biologically, the principle is sound, and it is believed that some day a better therapeutic application will be made. Extensive research is now being conducted on the chemistry of the tubercle and the tubercle bacillus, but until we know something of the body's mechanism of response to the infection, that is the immunology, there is little chance of a specific.

Calmette has opened a new field by the vaccination of new-born infants against tuberculosis. He uses a culture of living bovine tubercle bacilli, which have been grown in pure ox bile mixed with glycerine. It has been carried through 230 successive cultures, and grown over a period of thirteen years. Three doses, each of 400,000,000 bacilli, are given the infant by mouth in a teaspoonful of milk on the 3rd, 5th and 7th successive days after birth. This work was started in July, 1921, and up to May, 1926, 476 infants had been vaccinated in Charity Hospital, Paris. These infants were vaccinated in two groups, the first consisting of 120, of whom eighty could be located in 1926 and proved to be in good health. Of the 356 remaining, 145 continued under their supervision. Of these, twenty-one are dead, showing the rate of 1.7 per 100 of those who were born and lived in contaminating surroundings, while there are no deaths from those vaccinated who were born and lived in uncontaminated surroundings. Statistics show the mortality of infants of the same age in France, Belgium, Great Britain and Sweden not vaccinated, born and reared, exposed to infection, to be 25 per 100, or one-fourth. Calmette, therefore, concludes that vaccination with his culture protects the lives of 99 per 100 of contact cases. It is, of course, too soon to say just what the outcome of this work is going to be. These vaccinated cases will have to be watched over a period of a generation to determine how much immunity has been conferred.

Thus you will see that tuberculosis is being attacked from every available angle. Some modes of treatment are on a firm basis and of undisputed value, while others are still in the experimental stage. The future holds greater achievements through the research route, and it is believed that the time is not far distant when a definite and specific cure will be discovered.

THE SURGICAL DIAGNOSIS AND TREATMENT OF THE DYSPEPSIAS.*

By EDMUND HORGAN, M. D., F. A. C. S., Washington, D. C.

Thirty and more different conditions or diseases cause dyspepsia. The commonest of these are gastric ulcer, gastric carcinoma, duodenal ulcer, cholecystitis and chronic appendicitis.

ETIOLOGY.

The cause of these common forms of dyspepsia has not been conclusively established; but the work of Rosenow in reproducing some of these diseases in laboratory animals from pus obtained from foci of infection in patients suffering from them, has given us the most logical explanation of the cause. The cause of carcinoma of the stomach is as little known as the cause of carcinoma elsewhere.

Age.—These common forms of dyspepsia occur in all decades of life. Gastric ulcer is found most often during the fourth and fifth decades; gastric carcinoma is most frequently found beyond middle life, occasionally, in the young adult; duodenal ulcer, frequently before, but mostly during and after the third decade; cholecystitis most often beyond the third decade. Chronic appendicitis occurs at all ages.

GASTRIC ULCER.

Chronic gastric ulcer is also known as "peptic ulcer." The patient usually gives a history of spells of "stomach trouble" over a long period of time. The spells last from a few weeks to a few months. As a rule there is no periodicity in their occurrence, but occasionally they are seasonal, coming in the spring and fall. The period between spells is characterized by freedom from pain and relative freedom from other symptoms. The chief symptom during a spell is pain coming on one and a half hours after meals. The pain may be relieved by alkalies, and sometimes by food. If untreated, it persists for an hour or two, usually subsiding before the next meal. A heavy meal of course food will be followed by longer and more severe pain than is occasioned by light eating and bland food. The character of the pain may be described by the patient as "boring," "burning," "aching" or "gnawing." The location of the pain is in the epigastrium. During the time of pain the patient complains of marked weakness and lassitude. Sour eructations are common, and

nausea is occasional. Vomiting rarely occurs unless there is an obstruction in the stomach, in which case it is frequent. Hemorrhage occurs in over 25% of the cases, and where it does occur the loss of blood may be great enough to produce an acute anemia and even death. Patients often give a history of loss of weight, or a general decline from the beginning of the trouble.

Physical examination of the patient does not reveal anything decidedly characteristic of gastric ulcer, but a tenderness high in the epigastrium is found quite frequently. In gastric ulcer the acid values are usually high, but they may be low, in which case they suggest the possibility of a malignant change in the ulcer. The chief aid in diagnosing gastric ulcer is an X-ray study.

GASTRIC CARCINOMA.

Carcinoma of the stomach is one of the most frequent causes of marked gastric distress, and next to the uterus the stomach is the most common location of cancer in the body. Patients having carcinoma of the stomach may give either a history of marked digestive disturbance over a period of several months with no antecedent history of dyspepsia, or a history of dyspepsia off and on over a period of years with a marked increase of the symptoms over a period of months. With the onset of the digestive disturbance there is a loss of appetite, and a loss of strength and weight, which gradually increases, as the disease progresses. There is usually gas, belching and the regurgitation of small quantities of food and sour or foul-tasting fluid. Whatever form of distress the patient may have, it is most persistent, and relief or comfort cannot be obtained from food, alkalies, irrigation or vomiting. The failure to obtain relief by these methods alone should be suggestive of carcinoma. The patient has a marked pallor at first, which late in the disease changes to a yellowish tinge characteristic of cachexia. There is an anemia without visible hemorrhage. Hemorrhage occurs in only about 10% of the cases, but there is a steady loss of small amounts of blood which is altered by the gastric juice and which makes the "coffee grounds" vomit characteristic of this disease.

On physical examination a palpable mass in the epigastrium is present in over 75% of the cases. Examination of the stomach contents

*Presented before the Medical Society of Maryland, Virginia and the District of Columbia on November 10, 1926.

reveals altered blood, food particles, low free HCl and total acids or the absence of free HCl and low total acids. X-ray study is the most accurate single method we have of diagnosing gastric carcinoma.

DUODENAL ULCER.

The patient with duodenal ulcer complains of "stomach trouble" coming in spells usually in the spring and fall, lasting from a few weeks to a few months, and alternating with periods of complete freedom from symptoms. During the spell the patient has pain which comes from one to five hours after meals, and lasts until the next meal or until relieved by food or alkalis, or even by vomiting. Pain recurs at the same time after each meal each day. Gastric distress during the night is frequent, recurring regularly at the same hour. It can be relieved by crackers and milk or soda, and the patient soon learns to keep his particular remedy at his bedside.

Occasionally there is some gas and a sensation of fulness in the epigastrium during the time of pain. It may be accompanied by sour eructations. Nausea and vomiting sometimes occur. Bleeding occurs in 20% of the cases of duodenal ulcer. The hemorrhage is rarely fatal but is often serious.

There is usually a history of gradual loss of weight from the time of onset, but occasionally there is noted an increase if the patient has had dietary treatment. To physical examination there is no distinguishing sign for duodenal ulcer. Tenderness in the epigastrium may be found in some cases during a spell. Chemical examination usually shows hyperacidity in cases of duodenal ulcer; but this is not a sufficiently constant sign to be depended upon in any single case or in any single analysis. X-ray, especially in the hands of experts, is a most reliable aid in locating the ulcer and confirming the clinical diagnosis.

CHOLECYSTITIS.

Chronic cholecystitis is a very common cause of dyspepsia occurring in mild and severe forms. The mild forms may be difficult to diagnose, but the severe forms have a well marked train of symptoms. The patient usually describes the spell as coming on after taking food that disagrees, after an indiscretion in diet, or as due to constipation. The chief symptom is gas, with belching, bloating of the

abdomen and fulness in the epigastrium and lower part of the chest. The distress is caused by the taking of food and may come on during the meal, but usually comes shortly after. Certain foods cause "repeating," and certain foods cause distress; the avoidance of these will allow the patient to be comparatively free from trouble. Intolerance for pork, sometimes lamb and veal, cabbage, onions, radishes, raw apples, bananas, etc., is most characteristic of this disease. Relief is usually obtained by belching. Vomiting occurs at times and most often gives relief. Some patients learn this and will induce vomiting. Soda or food usually does not give relief. The patient with cholecystitis is, in most cases, well nourished, has a good appetite and indulges it until discomfort forces him to a rigid diet.

Tenderness in the region of the gall-bladder and along the lower border of the liver may be found on physical examination, but is not always present. The visualization of the gall-bladder by means of the X-ray following the oral administration or the intravenous injection of sodium tetraiodo-phenolphthalein, as suggested by Graham, Cole and Copher, is giving us valuable aid in diagnosing or excluding chronic cholecystitis and cholelithiasis.

Symptoms of cholelithiasis are the same as in cholecystitis, with a history of one or more attacks of gall-stone colic, which may or may not be followed by jaundice. The attacks of colic are characterized by a sudden severe pain coming in the epigastrium and going through to the back and radiating to the right shoulder. The duration is from a few minutes to a few hours and the subsiding of the pain is almost as sudden as the onset. Following the attack there is tenderness if the gall-bladder is distended and there is soreness of the muscles in the epigastrium from contraction during colic.

CHRONIC APPENDICITIS.

Chronic appendicitis may mimic any or all of the varieties of chronic dyspepsia. The distress is usually epigastric, with nausea, bloating, regurgitation, etc. Epigastric discomfort may be more or less continuous, or may come in spells. Attacks of pain or discomfort occur very irregularly with regard to meals, time of day, etc.

Clinical laboratory and roentgenological studies have not developed tests or methods that are of much aid to the clinician in diag-

nosing this condition. Therefore, the surgical diagnosis depends upon the history. A history of one or more attacks of pain and tenderness in the lower right quadrant of the abdomen accompanied by nausea may be obtained from the patient if careful inquiry is made.

TREATMENT.

Almost every dyspeptic condition has a medical aspect, and in its early stages should be given dietary treatment to try to bring about relief. Where a decision is to be made between surgical and dietary treatment, the time and money of the patient are often deciding factors, together with his mental ability to obey faithfully a long and complicated dietary regime. But outside of these determinants, and in general, dietary treatment is indicated in early dyspepsias and surgical treatment in long-standing chronic dyspepsias.

Surgery.—In opening the abdomen for any one of the chronic dyspepsias, an incision large enough for an exploration of the abdomen should be made. A right rectus incision is the one usually chosen.

In gastric ulcer the ulcer may be excised by a cautery, with a knife, or by resecting a wedge shaped segment. Gastro-enterostomy should usually follow any form of ulcer excision. If the ulcer is large, a circular resection, or a subtotal gastrectomy may be done.

A gastric carcinoma in any portion of the stomach can be easily palpated and located. After it has been found, a thorough search should be made for metastases. If none is found, a wide removal by a resection of the stomach should be done, and this is followed by re-establishing the continuity of the alimentary canal by an anastomosis of the stomach to the duodenum or jejunum.

Duodenal ulcer, like gastric ulcer, should itself be treated surgically if practicable, not so much on account of possible malignant change as because hemorrhage may occur at some later date. It can be (1) infolded by placing a purse-string suture around it, (2) destroyed by cauterization, or (3) excised with a knife. Following any one of these operations a gastro-enterostomy may be done. Instead of any of the procedures just mentioned, a pyloroplasty combined with excision may be made. Where there is a marked cicatrix causing stenosis or pyloric obstruction, it is best to leave the ulcer untreated and do a gastro-enterostomy.

For chronic cholecystitis, with or without stones, the gall-bladder should be removed if possible. Some few cases are encountered where there has been an acute or sub-acute attack, where jaundice is present, and also where there are such complicating diseases as nephritis, etc., in which a cholecystostomy is advisable.

In the cases that are operated upon for gastric ulcer, duodenal ulcer, cholecystitis, cholelithiasis, etc., the appendix should be inspected and palpated, and unless there is a contraindication in the condition of the patient, the appendix should be removed. When the diagnosis of chronic appendicitis only has been made, and the abdomen has been opened for this condition, the liver, gall-bladder, bile-ducts, pancreas, stomach and duodenum should be examined, as chronic pathological conditions in these tissues are often associated with chronic appendicitis.

1801 Eye Street, N. W.

INDICATIONS AND CONTRA-INDICATIONS FOR THE EXTRACTION OF TEETH.*

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In every phase of dentistry there have been evolutionary changes which have kept pace with the progress of civilization. In keeping with the other branches, exodontia, too, has undergone many and sundry metamorphoses before it reached its present state as a distinct specialty.

We may assume that from time immemorial man has been subject, more or less, to diseases of the mouth which have made necessary the removal of teeth. Even centuries ago the value and importance of the teeth were recognized. Evidences of the practice of exodontia, in one form or another, may be found in early historical writings and in museums. Through the years many factors have influenced the character and standing of this branch of medicine. The removal or retention of teeth has likewise been affected by the scientific or pseudo-scientific thought of the times.

The profession, however, during these latter years has been somewhat overburdened with the ideas of extremes. In modern times we recognize that an era of "tooth pulling" followed the invention of the anatomical for-

*Read before the meeting of the Fourth District Dental Society of North Carolina, at Fayetteville, December 9, 1926.

ceps, in 1840, by the English dentist, Sir John Tomes. There have been periods when the slogan was "save all teeth." When denture making reached a higher degree of perfection than that which previously prevailed, a craze for extraction was again prevalent. The advent of the X-ray and its universal use in dentistry and the problem of focal infection have both played mighty roles in guiding the destinies of dentistry. So have root canal therapy and root resection. Then, too, anesthesia, both local and general, have played their parts. Between the extremes of "salvation and damnation" of teeth,—and this has so often been abstractly considered at times, apparently without much concern for the patient,—the pendulum seems to have swung its course. While there are "100 percenters" on both extremes, the profession as a whole is settling down to a more rational consideration of the subject at hand.

First: All teeth which are, *per se*, objectively so far decayed or broken down that they cannot be restored to function. This group would also include chronic and acute abscessed teeth giving clinical symptoms of involved adjacent tissues.

Second: All teeth which show X-ray findings of abnormal and harmful structural changes of the root apices.

Third: All supernumerary teeth which may be out of alignment; malposed teeth; teeth which interfere with a proper restoration that is indicated; to aid orthodontia.

Fourth: Such impacted teeth as are giving local or general symptoms or communicate with the mouth; other impacted teeth which may be removed as a means of preventing future possible complications.

CONTRA-INDICATIONS

Under contra-indications may be grouped all teeth which can be restored to function and usefulness; all cases of patients where the general health is such that it would be inexpedient to operate; cases where good surgical judgment would dictate that the operation be temporarily deferred if remedial measures will afford relief.

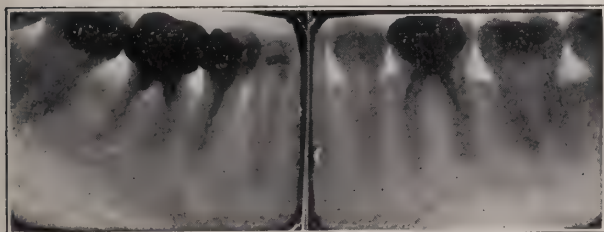


Fig. 1.—Pulpless teeth which do not show any X-ray evidences of structural changes which might indicate pathology.

CHOICE OF ANESTHETIC

In considering exodontia, let it be understood that for the time being we shall eliminate the subject of anesthesia, for exodontia is one thing and anesthesia is another. The various agents generally used in dentistry all have their merits and their indications. The choice of the anesthetic to be employed should be determined by the exigencies of the case and the selection should be left to the operator in charge. It might be borne in mind that you may have good anesthesia without good exodontia, but you cannot do good exodontia without good anesthesia.

INDICATIONS FOR EXTRACTION

It must be understood that no hard and set rule can be laid down as a guide for the indications and contra-indications for the removal of teeth. For the sake of convenience, the indications for extraction may be divided into four groups:

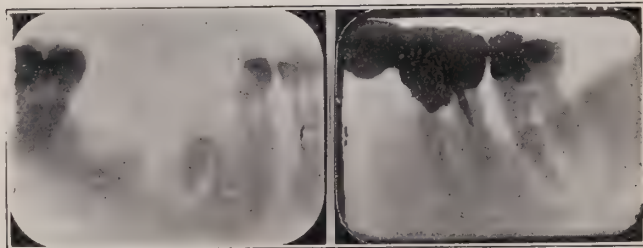


Fig. 2.—Roentgenograms showing structural changes at apices of teeth indicative of pathological lesions.

In certain types of acute abscesses and in cases of acute inflammatory areas over erupting third molars extraction is contra-indicated. Temporary relief should be given and measures instituted to restore the tissues to as near a normal condition as possible before surgical intervention is undertaken. This may be accomplished in some cases by a superficial cleansing of the area and by the application of extreme heat or cold externally, as may be indicated. By judicious postponement, complications of possible serious involvement of adjacent tissues are avoided. Extraction is also contra-indicated in some cases of patients suffering with severe heart lesions. Under

these circumstances the medical attendant should always be consulted.

In spite of the foregoing classifications we recognize that there are varying circumstances to alter the situation. Our best judgment must prevail in studying the particular case presented. Patients seek the services of a dentist for four reasons; *first*, for the relief of pain; *second*, for the relief of some general disturbance, having been advised that the teeth may be a factor in the production of a general disease; *third*, for aesthetic purposes; and *fourth*, as a prophylactic measure in maintaining a good masticatory apparatus.

DIFFERENTIAL DIAGNOSIS

It is not difficult in many cases to decide whether or not teeth should be removed. The symptoms may be so obvious that there would be no occasion for a difference of opinion. With many other cases, however, decision is not so easy without clearly weighing all the evidence at hand. A patient, whose general



Fig. 3.—Roentgenogram shows mandibular first molar with structural changes at its apices indicative of pathology. Note enlargement and malformation of root ends.

health is apparently good, will often have several pulpless teeth. In this instance the X-ray examination might show areas of structural changes about the root ends of the teeth, in which event treatment of the teeth might be undertaken. In another case the patient may be a sufferer of numerous ailments and an effort is being made to eliminate all foci of infection. There may be several teeth here which might even be considered doubtful, yet good judgment, in the interest of the patient's welfare, would dictate that these teeth should be removed.

There are some patients, for instance, who present conditions in their mouths which are not favorable for full denture construction. It is highly important in these cases to retain, if possible, some unaffected teeth which would

aid in the retention of the restorations. The opposite may also be true. There are other cases in which the retention of some teeth, although not pathologically involved, would mitigate against successful results, in which case the teeth should be removed.

It is equally as important, if not more so, to decide when not to remove teeth as it is to decide when to remove them. We have all seen cases of remarkable results following the removal of infected teeth. We have also seen many cases where good, bad, and indifferent teeth have been sacrificed on the altar of advancing science without any material aid to the patients. When the examination of a case shows the presence of teeth which are believed to be pathologically involved, it is only fair



Fig. 4.—Impacted supernumerary tooth situated between the maxillary second bicuspid and first molar. This tooth was not visible clinically.

that the patient should be advised of this. If the patient is being treated for some ailment in which a focus of infection is sought, and if extractions are indicated, the dentist should only advise that this particular focus should be eliminated as one of the possible causes. He should never promise definite results in such situations, where in the very nature of things there is uncertainty. There may be other foci which should be eliminated and this is within the province of the physician.

An examination and diagnosis which may be made at one time does not mean that this opinion will suffice for all time. The patient's general health is changeable and so are the many other factors involved. The dentist, in making his diagnosis and recommendation, is of necessity mainly influenced by the more recent findings in the case. While conservatism is the present key-note, we must not let this so blind our viewpoint as to interfere with such radical procedures as may be necessary when the patient's general health demands it.

IMPACTED TEETH

There is much difference of opinion at the present time regarding impacted teeth. The three teeth most commonly found impacted are the maxillary cuspids and third molars and the mandibular third molars. It is the mandibular third molar which most frequently offers the greatest trouble to both patient and dentist. The statement has been made that unless an impacted tooth is brought into normal position the tooth should be removed. This assertion might be viewed with some reservation. We do know, however, that there are many impacted teeth, particularly those which have some portion of the crown protruding through the soft tissues, that start up some local discomfort or become infected, and that surgical interference is indicated. We also know that there are many cases of patients who have suffered with some obscure pains in and about the head and that these conditions have been benefited by the removal of impacted teeth. The subject of impacted teeth might in itself occupy the attention of a whole paper. Here, however, as in the removal of infected teeth, the patient should not be led to believe that cures are always effected.

EXTENT OF SURGICAL INTERFERENCE

There was a time when nothing was thought of removing at one sitting a large number of the affected teeth, even if all thirty-two were involved. Since it is now an accepted fact that the teeth and adjacent structures play an

present illness, it is better not to remove more than two or three teeth at a time and to allow at least three or four days to intervene before the next operation. In cases of extreme illness it is the better part of wisdom, in instances, to remove only one tooth at the first visit and note the patient's reaction before proceeding with further extractions at a subsequent date. The patient may have an exacerbation of symptoms, a rise in temperature or general toxemia, etc. In normal healthy individuals several teeth may be removed at each visit; when a large number of teeth have to be removed, the mouth may be divided into quadrants.

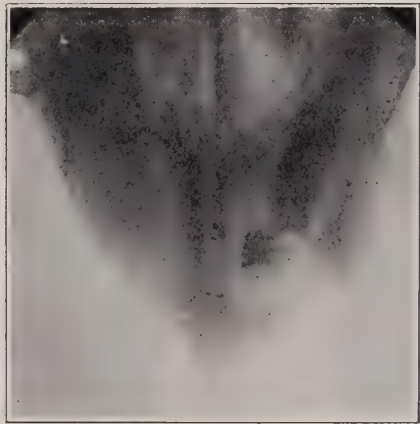


Fig. 6.—Roentgenogram showing impacted maxillary cuspid in patient 75 years old. Patient had been wearing a full upper denture for thirty years. Destruction of the osseous tissue over the tooth and of the crown of the tooth developed; a fistula was evident in the palate.



Fig. 5.—A horizontal impacted mandibular third molar.

important role in the health of an individual, we must guard against too much interference at one time. Where a number of teeth have to be removed, caution must be exercised in not removing more than a few at one sitting. Where it is suspected that the teeth may be one of the foci of infection in the patient's

MEDICO-DENTAL ASPECT

Who shall decide whether or not teeth should be removed? Surely the patient is not competent. Where the patient is under the care of a physician and the mouth is suspected as a possible focus of infection, it is the duty of the physician to refer the patient to the dentist for consultation. It is for the dentist to examine, consider and recommend what should be done. Because of the intimate correlation of dentistry and medicine as it affects the patient, there is need for the utmost co-operation between the dentist and physician. Patients should be treated as individuals and not "*en masse*;" the patient's welfare demands a personal interest. There is no conflict in the treatment of patients when the dentist and physician both recognize their respective fields and responsibilities.

A careful X-ray examination of the mouth is necessary before venturing an intelligent opinion. The examination should include the edentulous areas as well as all the teeth. It must be understood, however, that the radiographic findings are only an aid to diagnosis and that the clinical findings, both general and local, are of inestimable value. It is then that the competent and careful dentist correlates these findings with the history of the case. Upon these data will he base his recommendation and proceed accordingly.

410 Professional Building.

THE CURABILITY OF DIABETES MELLITUS—REPORT OF TWO CASES.*

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Clinicians have always regarded true diabetes mellitus as an incurable disease. Several reports of apparently cured cases appear in print, but these reports are peculiarly limited to the rare recovery in a child, or in an adult with some other glandular disturbance. Thus, John¹ cites two cases previously reported by Joslin and by Von Noorden of diabetic children, aged 7 years, and reports the spontaneous disappearance of diabetes in an adult case associated with acromegaly. He also presents the data of another patient in whom there was a marked restoration of the carbohydrate tolerance so that on a diet consisting of 200 grams of carbohydrate, 70 grams of protein and 157 grams of fat, a total of 2,500 calories, there was no increase in the blood sugar. John then concludes that "the carbohydrate tolerance is restored, and is normal." With appropriate therapy it is not very unusual to see such a restoration of the carbohydrate tolerance; a cure, however, consists of the maintenance of such a tolerance, or better still of a larger one, over a long period of time. John does not report the glucose tolerance test in this case. As will be shown later, such a patient, although apparently cured, may show the typical curve of the diabetic upon the administration of the glucose for the test, and his future course may show a return of the symptoms and signs of diabetes, as is demonstrated in *Case 2* below.

Abstracts of the histories and other data

*From the Department of Internal Medicine, Medical College of Virginia.

1. John, H. J.: Spontaneous Disappearance of Diabetes, J. A. M. A., 85: 1629: Nov. 21, 1925.

in two cases that demonstrate an apparent cure in diabetes mellitus follow. One was treated with insulin; the other by diet alone. The marked increase in carbohydrate tolerance seen in each case is very striking, but that this "cure" is not permanent is shown by the subsequent events in one of the cases and by the glucose tolerance test in both. These patients were first seen by Dr. J. Morrison Hutcheson, to whom I am indebted for the early data of these cases, and for the privilege of studying them on their recent return visits to him.

Case 1. H. R., a white male, 19 years old, was first seen on March 14, 1924. The patient stated that for 6 months he had been aware of an abnormal thirst and that he had been passing large amounts of urine day and night. He also complained of weakness and "nervousness," and of cramping in the left leg. He stated that he weighed 143 lbs. (65 kg.) in January, 1924, but that since then he had lost 13 lbs. (5.9 kg.)

The general physical examination was essentially negative. His weight was 130 lbs. (59 kg.) and his height 67 inches (167.5 cms.). Blood pressure 102 systolic, 70 diastolic. The laboratory findings, March 14, were: hemoglobin, 95 per cent; white blood cells, 8,200 per cubic millimeter. Differential count: neutrophils 59 per cent; small and large lymphocytes 41 per cent. Blood smears appeared normal. The blood Wassermann reaction was negative. Urine: sugar positive, trace albumin, acid reaction, straw color, sp. gr. 1.044. Microscopic examination showed few epithelial cells, occasional small clumps of pus cells, a little mucus; no casts or red blood cells. Blood sugar 285.2 mgm. per 100 cc. blood; non-protein nitrogen 34.4 mgm. per 100 cc. blood.

This patient was put on a diet consisting of 119 grams of protein, 117 grams of fat, and 86 grams of carbohydrate; a total of 1873 calories. On this diet the glycosuria disappeared in a few days; but a week later he again showed sugar in the urine and for this reason his carbohydrate was decreased to 61 grams.

On May 3, 1924, almost 2 months after the first visit, the urine was found negative for sugar and the patient reported that he had noticed no sugar in it since April 2.

On July 12, 1926, more than two years later, the patient returned for observation. He stated that he was feeling fine, that his sleep was sound, and that he was working six days a

week. He said that his diet consisted of the articles in the list given him over two years ago, but that he had been eating in amounts as desired, including the meat, fruit, milk, eggs, vegetables, cream and butter. In addition, on an average of once every month, he stated that he ate "everything," including desserts, and that the urine when examined by him at the end of such a day and the next day showed no sugar. He stated, further, that a day or two ago, in addition to the foods usually eaten, he had taken "two saucers of ice-cream and four or five apples" and that five hours later he found no sugar in the urine. His blood sugar, taken before breakfast, July 12, was only 135.1 mgm. per 100 cc. blood. The urine on this day had a specific gravity of 1.021 and it contained no sugar. His weight was 121 lbs. (59.5 kg.).

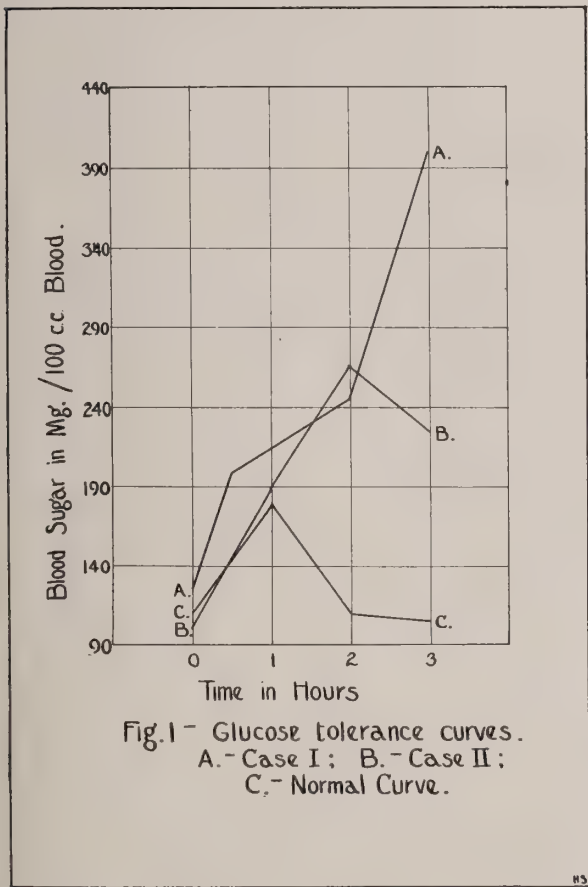


Fig.1- Glucose tolerance curves.
A.- Case I; B.- Case II;
C.- Normal Curve.

These findings were so suggestive of a complete restoration of the carbohydrate tolerance, and possibly complete recovery from the diabetes, that it was thought advisable to do a glucose tolerance test. The test was done on

July 13, 1926, and the results are noted in Fig. 1—A and Table I.

TABLE I.—GLUCOSE TOLERANCE TEST IN CASE I,
JULY 13, 1926.

	Before	After ½ hr.	After 1½ hr.	After 2 hr.	After 3 hr.
Blood sugar before and after ingestion of glucose in mg /100 c.c. -----	114.2	198.0	229.8	246.9	400.00
Sugar in urine, in per cent. -----	neg.	neg.	1.2	2.0	2.5

The method employed is essentially that described by Olmsted and Gay², using 1.75 grams glucose per pound body weight. It is readily seen that the curve is that of diabetes mellitus.

Case 2. W. F. F., a white male, 42 years old, was first seen on November 20, 1923. He complained of loss of weight and a large amount of urine. He stated that he had been well up to 30 days ago when he "took cold." Since the onset of this cold he had to cough and expectorate and had lost weight. Before getting sick he said his weight was 165 lbs. (74.5 kg.).

There were no especially noteworthy findings in the physical examination except for the chest where, on auscultation, small, moist rales were heard posteriorly at each apex. The breath sounds at the left apex behind were broncho-vesicular in character. The roentgenologist's conclusions from stereoscopic plates of the chest were as follows: "There is present a moderately advanced tuberculous lesion in the upper right lobe. The chest appears normal elsewhere except for a slight suspicion of involvement at the left apex." The patient's weight at this time, November 20, 1923, was 142 lbs. (64.5 kg.), and his height 67 inches (167.5 cms.). The urine had a specific gravity of 1.040, showed a trace of albumin and was positive for sugar. The blood sugar was 281.7 mgm. per 100 cc. blood.

On December 1, 1923, the patient weighed 143 lbs. (65 kg.) and stated that he was feeling fine and free of all symptoms. He had been taking a diet consisting of 123 grams of protein, 108 grams of fat, and 47 grams of carbohydrate—a total of 1652 calories. On this diet, with 9 units of insulin, he showed no glycosuria and his blood sugar was 122.9 mgm. A week later the diet was raised to 2300 calories and the insulin kept the same.

2. Olmsted, W. H. and Gay, L. P.: Study of Blood Sugar Curves Following a Standardized Glucose Meal; Arch. Int. Med., 29: 384 (Mar.), 1922.

On September 22, 1924, the patient returned for observation. He had been taking his diet and insulin, as previously directed, for almost a year. On admission to the Johnston-Willis Hospital, he was put on the same diet, but without insulin; protein 155 grams, fat 148 grams, carbohydrate 87 grams; calories 2300. He was observed for 4 days and during this time it was found that his 24 hour urine specimens were negative for sugar and that the fasting blood sugar, taken twice, did not exceed 90.9 mgm. During this time there was no cough, sputum, fever or rales.

On September 3, 1926, almost two years later, the patient again returned for observation. At this time he stated that for the past two years he had not followed any particular diet but that he had been eating "everything" except sweet tasting foods, potatoes and pastries. He said that he was eating large amounts of food and that he averaged about 6 slices of bread a day. He noticed no abnormal thirst or polyuria and no other symptoms except loss of weight. Examination at this time showed the patient to be quite emaciated. He weighed only 118 lbs. (53.6 kg.). There was marked dullness on percussion in both apices of the lungs and many moist rales in the dull areas. The urine showed no sugar and the fasting blood sugar was only 125 mgm.

Here was a very surprising restoration of the carbohydrate tolerance in a tuberculous diabetic. Because of the normal blood and urine findings, despite the very liberal diet, it was thought advisable to do a glucose tolerance test, as such findings suggest complete restoration of tolerance and perhaps even permanent cure. This test was done two days later, September 5, 1926, with the results as noted in Fig. 1-B and Table II. The curve is that of diabetes mellitus.

TABLE II.—GLUCOSE TOLERANCE TEST IN CASE II., SEPTEMBER 5, 1926.

		1 hr.	2 hr.	3 hr.
	Before	After	After	After
Blood sugar before and after ingestion of glucose in mg. /100 c.c. -----	99.9	187.7	263.1	224.1
Sugar in urine, in per cent.	neg.	neg.	0.5	0.7

The subsequent course of this patient further brought out that he was not cured. He returned November 27, 1926, complaining of great thirst, polyuria, voracious appetite and loss of weight to 112 lbs. (50 kg.). He stated that that these symptoms started a week after the glucose tolerance test, but also stated that,

since the test, he had started to eat much more than before, excluding only actual sweets and desserts and eating three slices of bread with each meal. He had used no insulin. His urine showed a large amount of sugar and his fasting blood sugar was 303 mgm. He was put on a diet consisting of 72 grams of protein, 203 grams of fat and 33 grams of carbohydrate; calories 2247. On this diet, and 20 units of insulin before the noon meal, his 24 hour urine specimens showed sugar and his blood sugar (fasting), taken November 30, was 312.5 mgm. On December 1, twenty more units of insulin, before supper, were given and his blood sugar taken just before the next breakfast was 182.1 mgm. On December 3, the 24 hour urine showed no sugar. On December 4, the diet was raised to protein 82 grams, fat 215 grams, carbohydrate 50 grams; total calories 2463, and the insulin was raised to a total of 60 units. Two days later the fasting blood sugar was 151 mgm. and the patient was discharged from the hospital on this diet and insulin. Changes in the diet and insulin were necessarily hurried as the patient could stay no longer.

It is interesting to note that, while there was a return of the diabetic symptoms, there was a marked improvement in the tuberculous infection in the lungs. On Dec. 29, 1926, the roentgenologist reported that "in comparison with examination made Nov. 20, 1926, the involvement of the upper right apex does not appear to be as extensive as previous films showed. There is a considerable amount of fibrous tissue deposit present. There is an occasional soft tubercle, but these are not nearly so marked as previously noted. There are many calcified tubercles around the hilum and lower portion of the lung. The lesion in the upper left lung appears to be healed, there being no evidence of any soft tubercles present." The conclusions were that there was a marked improvement to be noted over the previous examination, but that the tuberculosis was not entirely quiescent.

These two cases demonstrate the marked increase in the carbohydrate tolerance that can occur in diabetes mellitus. At one stage of the clinical picture when the improvement is most marked, one would have practically no evidence to show that they are still diabetic and a decision that a cure has been effected is likely to follow. In each case, however, the results of the glucose tolerance tests show that the

sugar burning capacity of these individuals is not normal, and when one follows the future clinical course of such patients, as was shown by Case 2, we find a return of the diabetic symptoms and signs.

Partial recovery from diabetes, that is, increase in the carbohydrate tolerance, is not only seen clinically but can be produced experimentally as well. Copp and Barclay³ came to the conclusion from experiments on dogs made diabetic, that the damage done to the islands of Langerhans by subsequent over-feeding could be repaired, providing the beta cells had not progressed beyond the stage of hydropic degeneration and proper treatment was instituted. Clinically, however, the destructive process is rarely, if ever, reversible to a degree that manifests itself in complete and permanent restoration of the sugar burning capacity. It may be that complete recovery does not occur because the damage done the human pancreas has progressed beyond the reversible stage, or it may be that constant damage is being done by whatever injurious agent it is that causes diabetes mellitus.⁴

With the advent of insulin there arose the hope that diabetes might be eventually cured. Cures of undoubted cases have so far not been seen as a result of insulin therapy. Harrison⁵ states that to his knowledge "no case of human diabetes mellitus has as yet been published in which it was possible eventually to stop the insulin entirely and to allow an absolutely unrestricted diet, without the return of hyperglycemia." In Boyd and Robinson's⁶ case, while there were noted clinically a very marked increase in the carbohydrate tolerance and at autopsy a regeneration of the islands of Langerhans, yet it is noteworthy too, that, although this patient had been treated with insulin for a year, there was never complete restoration of the tolerance. While the islands had regenerated in this case, a child nine years old, no such regeneration was noted in the twenty-six autopsied cases, all adults, reported by Warren and Root⁴, who state that they could not, so far as they could determine, note

any difference between the pancreases of those given insulin and those under dietary treatment alone, with the possible exception of one insulin treated patient who showed more apparently normal islands than would ordinarily be the case. These writers certainly found no marked evidences in the adult of a regenerated pancreas, and such findings coincide with clinical experience of the incurability of this disease.

From post-mortem and experimental data, then, and from clinical experience, it is obvious that at the stage of apparent cure in diabetes mellitus one is not justified in advising a general diet with an unlimited amount of carbohydrate. Should such a patient develop an acute infection it would still be very important to study the blood and urine and be on guard to institute such dietetic and insulin changes as may be necessary. The present day therapy is very effective, indeed life saving, and with it one can restore the diabetic to the enjoyment of good health, to his work, and to happiness, although he may never become cured.

Professional Building.

ESSENTIAL FACTS IN CONNECTION WITH THE USE OF LOCAL ANES- THESIA IN NOSE AND THOAT SURGERY.

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GENERAL DISCUSSION.

Many surgeons have come to the conclusion that it is not a question of the form of drug used in a complete or partial local anesthesia, but rather the attitude of the surgeon towards the operation in mind. In the hands of most surgeons, cocaine in weak solutions, or any of the synthetic preparations, is believed to be effectual as far as the matter of pain is concerned. A technique can be perfected from experience which will make it possible to use cocaine or any non-toxic preparation in quantities which will exclude all pain, but this is only a part of the success which may surround any operative procedure. The purpose of an operation is not accomplished simply by performing the operation without pain. As a result of this faulty opinion that operations are successful if done without pain, there are too many operations performed without due regard to diagnosis, the seriousness which may

3. Copp, E. F. and Barclay, A. J.: The Restoration of Hydropically Degenerated Cells of the Pancreatic Islands in Dogs under Insulin Treatment. *J. M. Research*, 4: 445 (Sept.-Oct.), 1923.

4. Warren, Shields, and Root, H. F.: The Pathology of Diabetes, with Special Reference to Pancreatic Renegeration, *Am. J. Path.*: 1: 415 (July), 1925.

5. Harrison, G. A.: Can Insulin Produce Even a Partial Cure in Human Diabetes Mellitus? *Quart. J. Med.*, 19: 223 (Jan.), 1926.

6. Boyd, G. L. and Robinson, W. L.: Evidence of Regeneration of the Pancreas in an Insulin Treated Case of Diabetes. *Am. J. Path.*, 1: 135 (Mar.), 1925.

be associated with the operation, the shock resulting from it and the final result attending it.

All operative procedures, from a simple opening of a minor abscess of the throat to the radical mastoid or radical frontal, should be approached with caution. The same preparations should be made for a case where local anesthesia is contemplated as if a general anesthetic were used.

Perhaps the best aid in the success of a local anesthetic is proper conduct as to diet. In withholding foods and liquids we do not have the unpleasant situation of nausea and vomiting of foodstuff, nor the effort to empty a stomach full of fluid. A good pre-operative medication is a hypodermic of morphine (gr. $\frac{1}{8}$) with scopolamine (gr. $\frac{1}{200}$) one hour previous to the operation, and instructions given to have the patient's surroundings made quiet. The patient is thus placed in a mood of indifference to what might occur during the operative procedure.

As a rule, many surgeons unintentionally use about twice as much of any preparation as may be reported on the operative history blank; for instance, in swabbing the throat or the nose with cocaine preliminary to a tonsil or septum operation, one may not take into account the amount of cocaine that drips from a wet or soggy sponge or mass of cotton.

The matter of post-operative treatment is important after a local anesthetic. The patient should remain in the hospital from 24 to 48 hours after the operation, and even longer than this when work of a radical nature is done, necessitating in some instances a stay of at least a week or ten days.

The question of bleeding is a matter which can be controlled in local anesthesia. It is not necessary to use as much adrenalin as has been heretofore thought necessary. A small amount of adrenalin will control bleeding and at the same time allow natural hemostasis to occur.

It is the opinion of those who have done much operative work with local anesthesia, that local anesthesia can be carried to a greater variety of patients without danger than could be promised for any form of general anesthesia. Age plays no role in the success of the anesthesia any more than such physical disabilities as heart lesions.

All cases should be hospitalized, prepared

properly for operation, kept comfortable prior to operation, and be treated afterwards as surgical cases.

The question of anesthesia in nose and throat work was studied by the American Medical Association (Section on Laryngology, Otology and Rhinology) from the point of view of the special advantages and disadvantages. They reported their extensive research to the Section on Laryngology, Otology and Rhinology at the seventy-first annual session of the A. M. A. in 1920. The matters of advantages and disadvantages of local anesthesia, sterilization, the occurrence of edema and sloughing, idiosyncrasies, toxicity, new local anesthetics, clinical investigations, replies to questions on the subject, the administration of morphine before operating, the pharmacological effects of local anesthetics and the comparison of local and general anesthetics, were all taken up by the committee appointed. Their report is summarized as follows:

"As a result of the study of the literature, clinical experience and animal experimentation, we conclude that:

1. There is a remarkable similarity between the clinical facts and animal experimentation.
2. None of the synthetic products equals cocain in its local effect when applied to the mucous membrane.
3. These synthetic products may be freely injected, if slowly done, in proper doses in unlimited quantities.
4. Fatalities either occur immediately or not at all.
5. The drug is eliminated in the liver.
6. The greatest danger lies in too rapid injection or entering a vein.
7. A peculiar susceptibility which we term idiosyncrasy does exist, as the drug enters into the circulation so rapidly that death is almost immediate.
8. A further study of the toxicity of these local anesthetics will result in definitely establishing the cause of death.
9. Local anesthesia is undoubtedly the choice of methods by all American rhinologists in nose operations.
10. It is also the choice of a very large proportion of American laryngologists in throat operations.
11. There is a small number who believe that tonsil operations particularly are best performed under general anesthesia.

12. The dangers of hemorrhage during tonsil operations under local anesthesia are no greater than under general anesthesia.

SUGGESTIONS.

1. "All operations ought to be performed with the patient recumbent, beginning with the first application of the local anesthetic, except in intra-nasal sinus operations, in which the head and shoulders may be elevated to an angle of 45 degrees and the table raised so that proper direction may be maintained.

2. Each operation should be preceded by a hypodermic injection of morphine and the patient kept in the hospital.

3. *In nose operations*, the committee recommends the application of, first, epinephrin, followed then by cocain, and the injection of the synthetic drug—*introduced slowly*.

4. *In throat operations*, a 5 per cent solution of cocain should be applied, followed by the *slow injection* of the synthetic product.

5. When there may be a suspicion of possible danger, one-fourth of the amount of anesthetic to be used at the time of operation should be applied and the patient watched for possible toxic effects.

6. Among the cases included in the latter are those with evident cardiac disease, exophthalmic goitre, or other disturbance of internal secretion.

CONCLUSIONS.

1. Local anesthesia is the ideal method to be used in operating upon affections of the nose and throat.

2. None of the dangers that have been mentioned are as great as those following general anesthesia. The committee recommends the use of soluble tablets for making the solutions freshly as required. These to be dissolved in hot water (sterile) by the operator. The unnecessary deaths quoted from 'mistake of druggist' or 'of nurse' would thus be avoided."

In a very much more recent report, which is really a continuation of the former research investigation, the committee reports on the toxic effects following the use of local anesthetics.

"The local anesthetics were used in the nose or antrum of six patients whose deaths are reported and on twenty for removal of the tonsils * * * *".

"The table shows that cocaine was applied

in at least twelve of these cases in concentrations greater than the committee now recommends as being safe; one death was due wholly or mainly to morphine and one patient received an injection of apothecin with epinephrin. Several of the records are so incomplete that no attempt is made to fix the immediate cause of death. Only one of these deaths is apparently due to procain."

In the summary, it is stated that procain "is certainly by far safer than any of the other local anesthetics in common use, but that does not mean that procain should be used without caution, for it is capable of causing death when large quantities are injected into the tissues. Butyn, alypin, apothecin, stovain and cocain are probably about equally dangerous when injected into the tissues and when concentrated solutions are applied."

In its recommendations, the committee states that *cocain* should not be injected into the submucous tissue or subcutaneously. Cocain paste ("mud") should not be used as a pre-operative measure. Its use in that way is unreservedly condemned. Especial care should be exercised in the use of local anesthetics to the nose. The committee believes it safe to use cocain not over 10 per cent and in total amounts of from 10 to 15 minims containing from 1 to 1.5 grains, this to be applied locally. Not under any circumstances should it be injected. Procain should not be used in greater concentration than 1 per cent; apothecin not greater than 2 per cent and not more than 1.5 grains; butyn should not be injected but should be applied in 2 per cent solutions. Epinephrin serves a valuable purpose in causing a bloodless field and in delaying the absorption of a local anesthetic, especially procain, but the addition of epinephrin in amounts of 1 mgm. or more to a solution of cocain of 10 per cent results in a greater degree of toxicity than that from cocain alone when rapid absorption takes place; hence, the use of large doses of epinephrin with cocain is deemed unsafe, and epinephrin should not be used in greater concentration than 1: 10,000, and of this not more than 10 minims with cocain.

When severe toxic symptoms result, efforts should be made to sustain the heart in order that the drug may be carried to the liver, where it is destroyed. Cardiac massage, and, perhaps, epinephrin in proper intracardiac doses, are indicated when the heart has stopped.

Artificial respiration is indicated as a rule.

Ether inhalations are of value only in controlling convulsions.

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INTERNAL DERANGEMENT OF THE KNEE.*

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"Internal Derangement of the Knee" is a condition about which voluminous literature has appeared in the past ten or fifteen years. Because other articles have been so complete and have been based on a review of so many more cases, it is with some hesitancy that the writer presents a paper dealing with this by no means uncommon disability. This hesitancy, however, is somewhat modified by a fact which strikes the orthopedic surgeon who reviews his cases of injury to the knee.

In studying the cases to be discussed here and in reading case reports in other articles, one is impressed by the fact that usually the patient with an internal derangement of the knee has suffered from it for many months before he comes to operation and, what is even more striking, that the treatment given at the time of the first and causative accident has been wholly inadequate. As a rule, the sufferer is first seen by the family physician or the general surgeon, and it is not until the condition has become chronic and the derangement oft repeated that the orthopedic surgeon is consulted. Effective treatment of the primary injury will often prevent recurrences and the operation these usually require; and if this paper can help to make clearer the seriousness of the immediate injury and the damage to the knee joint which the repeated injuries cause, and to emphasize the importance of early, adequate treatment, that is its justification.

DEFINITION AND HISTORY

"Internal Derangement of the Knee" is rather a loose term first employed by William Hey, of Leeds, in 1784. It covers a fairly wide field of injuries to the joint, but for the purposes of this paper only the following, which are placed in the order of frequency of occurrence, will be considered:

1. Injury to semilunar cartilage, most frequently the internal;
2. Loose bodies in the joint,—so-called joint-mice;
3. Injury to the anterior crucial ligament.

Although the name of this condition originated so many years ago, it is only in the last twenty years that it has been accurately diagnosed, its pathology demonstrated, and its treatment perfected. To Sir Robert Jones, of Liverpool, is due the chief credit for this advance in knowledge. Formerly, operations on the knee joint were so often followed by infection and dire results that it was a field approached with fear and trembling. He and others who followed his example showed that, with proper and strict technique, the knee could be explored with the same sense of security against infection with which an exploratory laparotomy is done.

ANATOMY OF THE KNEE JOINT

In order to understand the mechanism of production of injuries to the knee joint, familiarity with the anatomy of this articulation is essential.

The knee joint, according to Gray,¹ is not simply a hinge joint. It must be regarded as three articulations in one: one between each condyle of the femur and the corresponding tuberosity of the tibia, and a third between the patella and the femur. The three bones entering into the formation of the joint are connected together by ligaments, some within and others without the joint. Outside of the articulation are the anterior, or patellar ligament, the posterior, the internal and external lateral ligaments, and the capsular ligament. Within the chief ligaments are the anterior and posterior crucial, the two semilunar fibro-cartilages and the coronary ligaments.

The anterior or patellar ligament is broad and strong and with the patella forms the anterior wall of the joint. Behind it lies a mass of fat separating it from the capsule. The posterior ligament lies behind the joint.

The lateral ligaments, particularly the in-

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ternal, are of interest in this subject. The internal extends from the inner condyle of the femur to the inner tuberosity and the shaft of the tibia, and its deep surface, according to Gray, is intimately adherent to the internal semilunar cartilage. Most anatomists consider it a strong ligament and important in the function of the joint. Recently, Bristow² has suggested that it is a comparatively feeble structure and merely a continuation of the deep fascia of the thigh and that the connection between it and the semilunar cartilage is less close than has been generally supposed. The external lateral ligament extends from the outer condyle to the head of the fibula with no attachment to the external semilunar cartilage.

All these ligaments are intimately connected with the capsule surrounding the joint.

Of the ligaments within the knee joint, the crucials are most important. The anterior crucial extends upward, backward and outward from an origin just anterior to the tibial spine to be inserted into the inner and back part of the external condyle. The posterior crucial extends upward, forward, and inward from the depression behind the spine of the tibia to its insertion in the outer and fore part of the internal condyle of the femur.

The semilunar cartilages, which are of great interest in internal derangement of the knee, are two crescentic lamellae which serve to deepen the head of the tibia for articulation with the femoral condyles. The outer circumference of each cartilage is thick, convex, and attached to the inside of the capsule of the knee; the inner border is thin, concave and free. They cover about the outer two-thirds of each tuberosity of the tibia, to which they are attached by the coronary ligaments, and are covered by synovia. The internal semilunar is nearly semicircular, is attached to the bone at its extremities, and the internal lateral ligament attaches to its mesial border. The external semilunar forms more of a circle, is attached to the bone posteriorly and blends anteriorly with the anterior crucial ligament. Its coronary ligament is the larger of the two, which allows it more mobility than the internal.

The muscles about the knee play a large part in controlling its function. According to Bristow,² the muscles form the first line of defense against strain, and the ligaments the second. With prolonged action of the damag-

ing force, or too strong force, this second line gives away. The quadriceps extensor is the most important muscle in defense of the knee against strain and one which is wasted and atrophied will permit damage to the joint by a trauma of slight severity.

The knee joint permits of flexion and extension and, in certain positions, of slight rotation inward and outward. Just before complete extension is effected, the tibia glides obliquely upward and outward over the oblique surface of the inner condyle, and the leg is rotated outward, and in flexion the converse of these movements occurs, so that at the beginning of flexion there is an inward rotation of the leg. In certain positions of the joint, the tibia enjoys an independent rotation on the femur, due to the presence of the semilunar cartilages, while in semi-flexion, with all ligaments relaxed, there is possible a small amount of rotation between the tibia and the semilunars. The anterior crucial prevents the tibia slipping too far forward, while the posterior checks too great motion backward. Both assist the lateral ligaments in resisting lateral bending of the joint. The semilunar cartilages, in addition to the motion they permit, act as buffers and adapt the surface of the tibia to the condyles of the femur.

MECHANISM OF INJURY TO THE KNEE JOINT

Because of the strength of the surrounding muscles and of the ligaments of the joint, dislocation of a normal knee is rare. But because of the complicated mechanism and function of the knee, the amount of leverage which can be brought to bear on it, the great range and variety of motion it enjoys, and because the articular surfaces are but ill adapted to each other, injury to the joint is frequent.

Severe trauma is necessary to rupture one or both crucial ligaments, which injury may be accompanied by a fracture of the tibial spine. Rupture of both crucials is always associated with rupture of other ligaments and usually dislocation of the knee. Abnormal hyperextension injures the anterior crucial, either by rupturing or stretching it. Stretching or even rupture of the anterior crucial is probably more common than has been thought and occasionally is found in cases of internal semilunar injury. Here the force and mechanism productive of injury to the cartilage continues to the point where the anterior crucial is stretched or torn.

Injury to the semilunar cartilages is produced by less severe trauma. Sir Robert Jones³ states that injuries to the internal semilunar are about twelve times more frequent than those to the external meniscus. The external semilunar, due to its weak ligamentous attachments, is more mobile, and thus can better adjust itself to forced positions of the joint. Its shape, being more circular, also makes it less prone to injury. On the other hand, the internal semilunar is quite well stabilized in its posterior half by its attachment to the deep fibres of the internal lateral ligament. The anterior half is relatively free, and the whole cartilage more truly semilunar in shape. In Jones⁴ opinion, injury to the internal semilunar occurs when force is applied with the knee partly flexed and the femur rotated inward or the tibia outward. During flexion the coronary ligaments are stretched and a twisting, usually with some abduction of the leg, is an essential element in the injury. Bristow² thinks that the direct grinding or compressing force between femur and tibia is also a factor. He says that "the circular shape of the external cartilage would protect it from injury, while with the knee flexed and the tibia rotated outward, the long inner femoral condyle might reasonably be expected to press directly on the anterior part of the internal semilunar where a tear could easily be produced".

Summing up the views, the general opinion is that flexion, outward rotation of the tibia, abduction, and compression are all elements in injury to the internal semilunar, with the first two essential. As most persons walk and run with a slight external rotation of the tibia, strain is usually thrown on the ligamentous structures on the inner side of the knee. Occasionally the same sequence of forces injures the external semilunar.

Injury to the internal lateral ligament may or may not accompany injury to the cartilage. Abduction of the tibia on the femur causes this injury. In most of the cases of semilunar injury seen, the internal lateral ligament is not ruptured.

TYPE OF INJURY

By far the most frequent internal derangement of the knee is the injured internal semilunar cartilage. This is true in the series of cases on which this paper is based. These cases were all seen and operated upon for internal derangement of the knee on the service of Dr. William Tate Graham, chiefly at St.

Luke's Hospital and the hospitals of the Medical College of Virginia, by him and the writer. As only those cases with complete records, including follow-up notes, were reviewed, this article does not include all the cases of internal derangement seen, or even all those operated upon in the arbitrary period of time selected. From November, 1923, to November, 1925, twenty knees were explored for internal derangement, and on sixteen of these the record is complete, with the follow-up notes based in all but three cases on an examination by the writer.

In these sixteen cases, the pathology found at operation was:

Injury to the internal semilunar cartilage alone in 10 cases.

Injury to the external semilunar cartilage alone in 0 case.

Injury to both semilunar cartilages in 4 cases.

Knee mice in 2 cases.

Tumor in knee joint in 1 case.

Injury to anterior crucial ligament in 1 case.

The injured crucial and one of the cases of knee mice had an injured internal semilunar also. These loose bodies were considered secondary to the ancient injury to the cartilage.

This predominance of an internal semilunar injury is found in all the collected statistics, making it the most common of injuries to the knee joint proper.

The exact nature of the injury to the cartilage is often difficult to determine. In Bristow's² report to the British Orthopedic Association, in 1924, of seventy-seven cases operated upon, there were the following pathological findings:

Anterior end detached	32
Circumferential tear	9
Tag projecting into joint.....	8
Cartilage displaced into intercondylar notch	8

He quotes Sir Robert Jones' report of 117 cases operated upon:

Fifty-three were torn from anterior attachment.

Sixteen were split longitudinally.

Eight were attached anteriorly and torn from capsule.

Seven were displacements of posterior horn.

Twelve were fractured transversely opposite the internal lateral ligament.

Eight were loosely bound circumferentially.

Timbrell Fisher's⁵ figures give an equal num-

ber of longitudinal fractures and of detachment of anterior portion, while some surgeons claim that damage to the anterior portion is most common, and others that the circumferential split is most common.

To the writer it seems that both of these views may be correct; that is, the dislocation or tearing away from the coronary ligament may be the initial effect of the trauma and the fracture secondary. They may both occur at the first injury or the fracture may occur at a later time, the displaced cartilage being fractured between the condyle and the tuberosity. In this series there were eight cases of dislocation alone and five of fracture-dislocation. In only one case was there a fracture without dislocation (the "bucket handle" type). The usual fracture found was transverse—across the middle of the cartilage. That both displacement and fracture were present in nearly half of the cases was thought due to the repeated traumata which had occurred. There would seem to be no benefit in distinguishing between dislocation and fracture of the cartilage, as both are so frequently found and as the same type of accident may cause either or both.

It is interesting to note that in these sixteen cases, all of which were operated on by the patella splitting incision, thus insuring a complete view of the knee joint, four showed injuries of both the internal and the external semilunar cartilages. In other words, nearly 30 per cent of the cases in which the pre-operative diagnosis was injury to the internal semilunar cartilage showed also an injury to the external semilunar, as capable of producing the symptoms as the pathology found in the internal semilunar. Two of these cases showed a dislocation of the external cartilage which was much hypertrophied, amounting in one to a cartilage tumor of the anterior horn; the other two cases showed a fracture dislocation of the external semilunar. In two instances the causative trauma was quite severe; in the other two, it was no more severe than in the usual run of cases with injury to the internal semilunar alone.

The high percentage of patients showing injury to both cartilages suggests that this type of case may be more common than is taught. Alwyn-Smith,⁶ in his article on the knee joint in *Orthopedic Surgery of Injuries*, remarks that on two occasions he has found simultaneous damage to both cartilages, but in much

of the voluminous literature on internal derangements of the knee, there is no reference to injuries to both cartilages. In a review of 232 operations for internal derangements at the Massachusetts General Hospital from 1900 to 1920, by Surls and Osgood,⁷ only two cases are reported in which both cartilages were removed and which, therefore, were presumably injured. Ninety-three of these cases were injuries to one or the other semilunar cartilage. Jones⁸ reports two cases of injury to both in 400 cases operated on, and in 125 cases Michener⁹ does not mention one in which both were found injured. The disproportion between the findings in these large series and in our small one is very striking. Is this because the usual incision for removal of the internal semilunar does not allow full inspection of the external cartilage? The surgeon finds an injured internal semilunar and removes it, assured by the greater frequency of this injury that he thus relieves the derangement. Perhaps the reason for failure in a certain proportion of cases is that there is also an injured external semilunar, which is left in the knee joint.

DIAGNOSIS OF INTERNAL DERANGEMENTS

The diagnosis of an internal derangement of the knee, like so many conditions in medicine and surgery, is made largely from the history the patient gives. The examination of the knee is often of much less value, and the X-ray examination of the joint is usually even less positive. Yet neither should be neglected.

The History.—Practically always there is the fact of an injury to the knee. Usually the force causing the injury is one which would twist the joint, though this is not always evident in the history. Often the patient will state that the knee caught or locked and he fell, that it was then "worked back into place" and water formed on the knee. This is the initial injury to the joint. If properly treated at this time, the chances of a recurrence are greatly lessened, but unfortunately the treatment usually given, as will be shown when the question of treatment is taken up, is wholly inadequate.

As a rule, there is a history of recurrent attacks. He recovers from the initial attack, but at a subsequent date some slight force, such as stepping on an uneven surface, for example, will cause a recurrence. There may be locking of the joint at this time and usually

there is pain and effusion, but generally the recovery is much more rapid than at the first injury. After one recurrence, recovery without operation is unlikely.

A typical history is that of Case 1, which may be quoted here:

"Three years ago while playing basket-ball he twisted the left knee. There was pain and effusion, but he does not remember whether the joint was locked. Treatment was adhesive strapping for the knee and crutches for walking. Ever since this accident at frequent intervals he has been troubled with something slipping on the inner side of knee, which may occur at any kind of motion of the joint. When this slipping occurs, the knee becomes locked, and patient has to work it back and forth to get it comfortable. Often the knee gives away under him and throws him. The knee tires easily on walking. When taking any unusual exercise he wears a bandage and an elastic binder over the knee. During the year prior to operation he had two periods of effusion, severe pain, and disability of the knee joint, each brought on by a trivial cause. There were in this period several attacks of slight severity."

This is a classical history and one on which a diagnosis can be quite positively made. Of course, all are not so indicative, but it is striking how often a clear and accurate history will permit the diagnosis to be made.

Locking of the joint is an important feature. The history described it in eleven of our sixteen cases, nine of which showed injury to the semilunar cartilages, one a small tumor, not of the cartilage, within the joint, and the other loose bodies in the joint in addition to the injured cartilage. The presence of locking is a great help in the diagnosis, but its absence is not against the diagnosis of internal derangement. In the article by Surls and Osgood,⁷ above referred to, locking was present in all of the external semilunar cases, in 82 per cent of the loose body and in 80 per cent of the internal semilunar. They make the interesting note that in one of their cases where the patient denied locking, the note of the examining physician stated that he found no locking, and that passive extension, but not active extension of the joint could be obtained. There was probably failure on the examiner's part to distinguish between extension and hyperextension, for at operation one week later the anterior end of internal semilunar was

found dislocated and locking the joint. In our four cases of cartilage injury which gave no history of locking, every one on examination showed a limitation of extension, varying from 15° to incomplete hyperextension, and may therefore be considered as locked at the time of examination, the dislocated cartilage interposing to prevent complete extension.

Physical Examination.—Examination of the joint, even if less valuable to the diagnosis than the history, is important and should be thorough. Both lower limbs must be bared and both knees examined with the patient standing, sitting and lying on the table. After inspection of the knee, it is important to ascertain wasting or loss of muscle tone in the quadriceps of the affected side as compared with the other. Often instability of the knee following operation is due to weakness of the quadriceps. The joint is then palpated for effusion, points of tenderness, increased surface temperature, thickening, and loose bodies. Instability of the joint must be tested for. Only in full extension is a "wobble" significant. Then the range of motion, both active and passive, is ascertained.

In our series of sixteen cases, at the office examination, the affected knee was apparently normal in three. In two others there were only slight abnormalities noted. The other eleven showed positive findings, because in nearly all of them a recent recurrence had caused the visit to the office. In nine, slight to marked effusion was present. The other two showed swelling of the tissues about the joint. In seven there was tenderness over the antero-internal aspect of the joint, about where the anterior half of the internal semilunar was thought to be. In nine cases, there was limitation of extension, ranging from 30° to incomplete hyperextension as compared with the opposite knee. In one there was abnormal lateral mobility with knee extended as far as possible, and in this one an injury to the anterior crucial was found. In no case was a loose body or a displaced cartilage palpated. In the case with multiple knee mice, so great effusion was present that they were not felt.

X-ray Examination. The examination of the joint by a competent roentgenologist is an essential part of the record. While the plate is often negative, the mistaking of operating for an internal semilunar when there is an avulsion of the tibial spine or the presence of joint mice or hypertrophic arthritis will not

be made if a previous roentgenological examination has been done.

In our series, X-rays were negative in ten cases. In two cases there was revealed a slight outward subluxation of the tibia on the femur in extension. The case of loose bodies was diagnosed by the X-ray. In two cases the X-ray plates were somewhat misleading. One showed a shadow in the joint interpreted as a fragment of the tibial spine, supposedly fractured. At operation it was decided the hypertrophied and partly calcified external semilunar was responsible for the shadow. One plate in the other case gave evidence of slight arthritic changes which re-enforced our determination not to operate. Yet, when operation was later done at the insistence of the patient, a small fibro-cartilaginous tumor was found responsible for his symptoms. It is only just to say that another roentgenologist reported a negative X-ray, so it is probably better to classify this case with those showing negative plates. The remaining case in which there was a positive X-ray finding was one showing a calcified body in the joint, found at operation.

Thus it is seen that in nearly one-third of the cases the X-ray examination was a direct aid to diagnosis. With the use of oxygen or air inflation of the joint and then X-ray examination of the inflated joint, some writers state that positive evidence is furnished in nearly all cases of injured semilunar. But with this we have had no experience.

DIFFERENTIAL DIAGNOSIS

There are several conditions, giving rise to similar symptoms, which must be differentiated from internal derangements. Points of difference will be but briefly stated.

1. Ruptured or strained internal lateral ligament is usually due to a direct blow to outer side of knee. There is no history of locking, pain is usually over the femoral attachment of the ligament, and usually there are not recurrent attacks. But in the initial derangement it may accompany the injury to the internal semilunar.

2. Slipping tendon may give rise to symptoms of locking, but the lock is momentary and usually easily reduced. There is no effusion, usually no tenderness, usually no history of injury, and the X-ray may show an exostosis over which the tendon slips.

3. Early arthritis, tuberculous or of other

type, is occasionally confused with internal derangement. This usually shows rather vague symptoms, as pain, stiffness, weakness in the knee, and some synovitis on over-use. The history usually does not suggest internal derangement and the examination may show grating, sometimes with muscular spasm. In more advanced arthritis, the X-ray is helpful.

4. Intra-articular fracture and fracture of the patella are diagnosed by the X-ray.

5. Recurrent dislocation of the patella, which complicated one case of this series, in which a joint mouse was removed, is often difficult to differentiate unless the surgeon sees the patella dislocated. The late John B. Murphy called especial attention to the difficulty sometimes found in making a diagnosis between it and internal derangement. As a rule, the quadriceps is lax and with the knee extended the patella may be pushed over the outer femoral ridge. Sometimes it is necessary to put the patient on exercises which may cause the dislocation where it may be observed.

With the diagnosis of internal derangement made, the question arises,—what is its cause?

As in the great majority of cases it is an injury to the internal semilunar cartilage, we have to exclude the other conditions next most common.

Loose body or joint mouse is positively diagnosed only when felt by the examiner's hand or revealed by the X-ray, but the latter practically always will show the loose body.¹⁰

Injury to the external semilunar cartilage, we believe, cannot frequently be positively distinguished from an internal semilunar injury. It may give rise to the same symptoms and even cause tenderness on the inner side of the joint, though, with it, tenderness is more common on the outer side. However, in Sir Robert Jones' vast experience, external semilunar injury is found in less than 8 per cent of internal derangements. In the four cases of our series which showed both semilunars injured, there was no symptom or sign which made this diagnosis evident before operation.

Ruptured anterior crucial ligament is usually due to more severe trauma. On examination of the knee in complete extension the tibia is found to slip forward on the femur. Sometimes the tibial spine is also fractured, which will be shown by the X-ray plate.

A fourth condition occasionally found is nipping of an enlarged retro-patellar fat pad. This usually causes transitory attacks of slight

pain with effusion, perhaps a dull ache behind the patella, and often there are slightly tender swellings about the patella tendon. Locking from this cause is rare.

In the fourteen cases of injured semilunars reported here, the diagnosis of injury to the internal semilunar was correctly made in all, but the additional diagnosis of injured external semilunar was not made in any of the four cases which showed this lesion also. Unfortunately, study of the records of these four patients has shown nothing in the pre-operative findings which would point to a method of making the additional diagnosis in future patients.

The most striking points in the history and in the examination of our sixteen cases were as follows:

- History of injury to knee 100 per cent;
- History of recurrent attacks 100 per cent;
- History of effusion in the joint 94 per cent;
- History of locking of the knee 69 per cent;
- Limitation of motion on examination 62.5 per cent;

- Tenderness over internal semilunar 43.7 per cent;

- Average duration of symptoms 3 years 11 months.

TREATMENT

From the standpoint of the patient treatment is the most important thing in the discussion of any medical or surgical condition. It should be equally so from the standpoint of the physician. No matter how expert we may be as diagnosticians, it is by the success or failure of our treatment that we are judged by our patients.

As was remarked at the beginning of this paper, the treatment usually given at the initial derangement of the knee is faulty and inadequate. If it be adequate, recurrence of the trouble will probably be avoided in many of the cases. If the treatment be inadequate, recurrence is practically certain.

In the acute case a thorough examination, including an X-ray of the joint taken in two directions, should be made. If the diagnosis is made of an injury to the internal lateral ligament, the knee should be kept at rest extended for three weeks. If the joint be found locked, as is frequently the case with semilunar cartilage injuries, reduction should be attempted, without an anesthetic, in order to have the aid of the patient. The leg should be firmly but gently flexed on the thigh by the surgeon, at the same time internally rotat-

ing the foot as much as possible. Then, with the surgeon's hand pressing down on the patella, the patient should be instructed to kick out the leg as hard as possible. If the cartilage is completely reduced, the patient, and perhaps the surgeon, will feel something slip in the joint, and full active extension of the leg is found possible without any difficulty. If active extension still be limited, the cartilage is not reduced and another attempt must be made. After reduction, the knee should be immobilized in extension, either by a posterior splint or a plaster cast, for at least three weeks, and it is better not to bear weight on the affected extremity during this time. After this period, in cases of both internal lateral ligament injury and of internal semilunar injury, body weight should be deviated from the internal lateral ligament by raising the inner border of the heel of shoe $3/16$ inch, for a period of several weeks longer. Because at the first injury, unless the knee is locked, it is practically impossible to decide between injury to the internal lateral ligament and the internal semilunar cartilage, it is fortunate that both require similar treatment.

In none of our cases had such treatment been instituted. The most common form of treatment was strapping the knee with adhesive plaster, only three cases being put to bed, two of these for two weeks and the other for one week. In one case only had there been a reduction of the dislocation cartilage by a physician and this treatment was vitiated by failure to immobilize the joint.

After the immobilization, baking and massage are indicated to restore the strength and tone of the quadriceps.

If the anterior crucial ligament be injured, either with or without fracture of the tibial spine, the knee should be immobilized in plaster for eight weeks, flexed 20° short of full extension, as this position takes the strain off the ligament. During this time, weight is not to be borne on the injured extremity.

If there is a loose body in the joint which causes the derangement, no method short of operation will relieve the condition. But the effusion and pain may be relieved by strapping the joint firmly with wide strips of adhesive plaster, best applied over a horse shoe shaped pad of felt surrounding the patella.

Operative Treatment.—If there are recurrent attacks of derangement of the knee, especially with locking, if reduction cannot be

accomplished, as was true in one case of our series, if there is loose body in the joint, then the only effective treatment is surgical.

We make it a rule in our suspected semilunar cases not to operate unless there has been a recurrence, with the exception of the case in which reduction cannot be accomplished. It is better, too, to follow the example of the abdominal surgeon in his operations on the appendix,—that is, to operate in the interval between attacks. The orthopedic surgeon can always do an interval operation on the knee, while the general surgeon is often forced to remove the appendix at the height of its inflammatory reaction. In four of our cases, the knee was opened while effusion was present, and these four showed the most marked post-operative reaction of the series. In two there was a slight serous discharge from the incision, with a temperature of 101° for several days, but there was no bacterial growth from a culture of this fluid, and the final result was excellent in both. It is more risky to operate on a knee containing fluid, with the soft tissues edematous and congested, and a little patience on the part of the patient and of the surgeon will give a much better field for operation.

Of course, the chief reason for exploring the knee joint in the patient with recurrent attacks of internal derangement is to relieve these attacks. But this is not not the only reason. Sir Robert Jones⁸ reports two cases of injured internal semilunar cartilage who refused operation and later developed tuberculosis of the knee. Another case which refused operation showed after a few years a severe chronic hypertrophic arthritis of the knee. This complication was found in Case No. 11 of our series. Not infrequently recurrent injuries to the cartilage cause the formation of the so-called "cartilage tumor", a remarkable hypertrophy usually of the anterior portion of the meniscus. In five of our cases there was a marked hypertrophy of the injured cartilage; and in two of these the enlargement was sufficient to be called a cartilage tumor. Recurrent effusions in the joint stretch the ligaments and weaken them so much that, unless relieved, they may cause a weak and unstable knee joint which greatly interferes with activity. Thus, we see that failure to relieve the internal derangement may lead to even worse conditions than the intermittent periods of disability.

When the decision to operate is made, arthrotomy of the knee is to be approached with the utmost allegiance to the principles of asepsis and performed with the strictest of surgical technique. There is no margin of error permissible, for the synovial membrane cannot combat infection as does the peritoneum.

If possible, it is best to do these operations at the same hospital, so that the operating room staff may be one thoroughly familiar with the rigid technique necessary in exploring the knee, for any error of technique may result in a suppurative arthritis with a consequent ankylosis, or even death from pyemia.

The skin over the knee must be free from pimples and scales or any other lurking place for bacteria. The day before operating, the operative field, extending from well up on the thigh to the middle of the leg, should be shaved, scrubbed with green soap and water, washed with 70 per cent alcohol, and covered with a sterile dressing. At operation the field is painted with benzine or alcohol, followed by tincture of iodine. We have not found it necessary to make the incision through sterile gauze or rubber tissue, but after making the skin incision the knife is discarded and the skin walled off with gauze or towels. A second knife is used for the remainder of the operation. Just as necessary as the proper preparation of the patient is the rigid preparation of the operating team. Ten minutes spent in scrubbing is not lost time for the surgeon.

The incision varies with the surgeon. Most common is a lateral curved incision to the inner side of the patella, beginning a short distance above the joint line and at the tibial margin curving back to the anterior edge of the internal lateral ligament. In all of the cases reported herein, the patella-splitting incision was used. This begins about three inches above the patella in the midline, extending down over it and the patella tendon to just above the latter's insertion. The quadriceps tendon is split, the patella divided vertically with a saw, the patella tendon split and the capsule opened. The knee is then flexed and the halves of the patella retracted outward, giving a complete exposure of the joint. It is not my purpose to advocate this incision to the exclusion of others. It necessitates a longer convalescence than the lateral incision, with a hospitalization of about three weeks rather than two; usually there is more effusion fol-

lowing it than with the lateral incision. But it affords a perfect view of the joint and, when the diagnosis is questionable, this is an important point. It also makes it certain that cases of injuries to both cartilages are recognized. Recently, Krida, of New York,¹¹ has described a long vertical incision beginning four inches above the patella in line between rectus femoris and vastus internus muscles, which sweeps inwardly around the patella, about one-half inch from its inner border, then downward to tibial tubercle, just inside of the patella tendon. The knee is flexed, and the patella dislocated outward over the external condyle of femur. We have not used this incision, but it would seem to allow complete inspection of the joint and would not necessitate as long immobilization as is required when the patella is split.

Mitchiner,⁹ in his report of 225 cases from St. Thomas's Hospital, London, concludes that the final results are better in those cases operated on by the transpatellar route, though it was immediately more painful and caused more effusion.

Whatever the incision used, when the joint is opened nothing should come in contact with it which has touched the hands. Sponges should be handled with forceps and all the work in the joint should be by instruments. The joint is carefully inspected and the pathology carefully noted. The injured semilunar cartilage is excised *in toto* or the loose bodies are removed. Although we do not use a tourniquet, it is rare that a ligature is required in the joint. Occasionally a few interrupted sutures of No. 00 catgut are taken to unite the synovia of the lower part of the joint; then the periosteum and ligament over the patella are sutured with No. 1 catgut, taking care to bring the fragments of the patella into exact apposition. The patella tendon, the quadriceps tendon, and the rectus femoris are sutured with No. 1 catgut, and the skin closed with equisitrine. A plaster cast is then applied from the groin to the toes with the leg extended.

This was the procedure in all the cases reported herein, as in these the transpatellar route was used. The wound is dressed through a window in the plaster on the tenth day, the anterior half of plaster is removed on the fourteenth day, and the posterior half about the eighteenth day. Active motion is then begun in the joint and the patient allowed

up on crutches on the twenty-first day. Crutches are discarded a week later. Baking and massage for two to four weeks more are very beneficial, but many of our cases could not remain in the city for this, and were merely instructed as to exercise and allowed to go home.

As a rule, full and free use of the knee is not obtained for from four to six months after the operation. Mitchiner⁹ says that slight effusion is likely to occur at times during the first two years after operation, and not until near the close of the third post-operative year is full benefit to be expected. This is not in accord with our experience, as after the first six months nearly all of our cases have had complete relief.

RESULTS

In estimating the results in these sixteen cases, all but three were re-examined personally at a time ranging from six to eighteen months after the operation. The three cases not re-examined were sent a follow-up letter with several questions to answer, one of which was "In your opinion, was the operation a success?" This question also was asked of those seen personally.

The cases who have perfect function, are completely relieved of their previous complaint, who can take part in sports, and who feel that the operation was a success, we have grouped as excellent results.

If there is still some slight complaint, but the previous symptoms are relieved, we have classed these as good.

If there has been any recurrence, we have classed these as unimproved.

As fourteen of these sixteen cases were semilunar cartilage injuries, we shall consider these first.

The results in 12, or 85.7 per cent, of the cases are excellent. One of these cases reports that on severe exercises there is sometimes a slight "slipping" of the knee, but he plays tennis and golf as much as he wishes and feels that the operation was a complete success. It is interesting to note that this patient (Case No. 1) showed at operation some relaxation of the crucials and it is probably this that gives him his slight instability.

The remaining two cases are classed as good. One patient had suffered a severe trauma with injury to both cartilages. The internal was excised, but only the loose anterior half of the

external semilunar was removed. Perhaps it would have been wiser to have removed this cartilage *in toto*. The other good result is Case No. 15 examined five months after operation, when the only thing which prevented it from being graded as excellent was that full function had not yet returned. This case, a fireman, later returned to full duty, and should be classed as an excellent result. In both of these cases, in which excellent results were not obtained, there was some effusion at time of operation, with much periarticular thickening.

In none of the semilunar cartilage injuries was there a case unimproved by operation.

In the four cases which had injuries to both semilunar cartilages, the results were excellent in three, while the fourth was the first case classed above as good. The one case with a definite injury to anterior crucial is completely relieved.

There were two cases of loose bodies in the knee joint. One of these (Case No. 11), also included under the semilunar cartilage group, obtained an excellent result. The second case is the only one of the sixteen which is classed as unimproved. It was possibly a mistake to operate on this patient. She was a neurotic woman who, in addition to the joint mouse, suffered from a recurrent dislocation of the patella. An operation for the relief of this condition was done later, but some months afterwards she developed a multiple infectious arthritis, and had so much pain in the knee that it was necessary to ankylose it. The arthritis was an entirely distinct process from her original trouble.

The remaining case of the sixteen is that with the chondro-fibroma of the knee joint. When this man was first seen we were so sure that his symptoms were caused by an early arthritis that we advised him against operation. He did not improve under anti-arthritis treatment and was so anxious to have his knee explored that we could no longer refuse to operate. At operation, what we took to be villi were seen coming off from the posterior part of the capsule. These were excised and we closed the knee, thinking our diagnosis was correct and that he suffered from villous arthritis. The pathologist reported the tissue as chondro-fibroma. The patient is completely relieved and thoroughly grateful. The lesson to be learned from this is,—do not fear to explore the knee, if other treatments fail.

In no case did infection occur.

The results in this small series of cases are about the same as in the larger series reviewed. Surls and Osgood⁷ report 83.1 per cent very satisfactory, 3.9 per cent good, 1.3 per cent fair and 11.7 per cent poor. Mitchiner⁹ reports 76.7 good, 19.2 per cent fair, 4 per cent unsatisfactory. Bristow², in end results on thirty-nine cases, reports 77 per cent good, 15 per cent fair, and 8 per cent unsatisfactory.

Undoubtedly, were these cases operated upon before so many recurrences, the results would be better. After repeated recurrences, the knee joint must be weakened and removal of the cause of the derangement alone cannot remedy all the pathology present.

CONCLUSIONS

1. Internal derangement of the knee is a fairly common condition in this country, though the incidence is not so great as in England.
2. The treatment of the primary derangement is usually inadequate and unsatisfactory. If correct, many of the cases will not recur.
3. If the derangement recurs, the operative treatment is usually necessary for relief, although manipulation and fixation may first be tried in semilunar injuries.
4. It is interesting to note that more than one-fourth of the cases in this report had injuries to both semilunar cartilages, while in other series reviewed, pathology of both has been rare.
5. Removal of both semilunar cartilages does not interfere with good function of the knee.

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Medical Arts Building.

THE FOURTH FUNDAMENTAL PRINCIPLE IN THE TREATMENT OF TUBERCULOSIS.*

By GERALD A. EZEKIEL, M. D., Richmond, Va.

The subject of this paper, "The Fourth Fundamental Principle in the Treatment of Tuberculosis" is a phase of the treatment hitherto very much neglected. The three fundamental principles—rest, fresh air and proper feeding—have been taught until not only every tubercular patient knows them, but the general public, the world at large. Steady progress is being made in the treatment of tuberculosis, with numerous advances; still there are cases that do not recover, although doing well when they left the sanatorium.

Rest, fresh air and proper feeding are three essentials for the successful treatment of tuberculosis. To make the treatment more successful, I want to add a modifying statement or what I want to call the "fourth fundamental principle"—rest, fresh air and proper feeding, to be administered under the direction and care of a physician skilled in the management of tuberculosis.

I have been using this principle in my practice with, I have felt, sufficiently encouraging results to justify bringing it to the attention of a larger number of physicians. This idea is not new with me. It has been presented many times before in a different manner. Still it is not generally understood. I feel that a paper devoted to the elaboration of this idea, presenting it as one of the fundamental principles in treatment and urging that it be so taught, should be well worth while.

The average patient on leaving the sanatorium feels that he knows more about the treatment of tuberculosis than the average practicing physician. I fully realize that all of the cases cannot remain in the sanatorium long enough for a cure; that a large part of the work of the sanatorium is educational. This being the case, the acceptance of this doctrine and adding it to the fundamental principles taught in the sanatorium would be of value. I see many cases from a few months to a couple of years after they have left the sanatorium and find that during this time they have not consulted any physician and do not do so in the majority of cases until there is a relapse in their condition. Had these cases been properly supervised from the time of dis-

charge, many of those discharged as arrested would be cured and those discharged with slight activity, probably arrested. In fact, untold good may be accomplished, as has happened in a case now under my care, discharged with the expectation that she would die, but now on the road to recovery with a fair chance of cure. This shows the need of a proper follow-up of the treatment started in the sanatorium, as results hardly to be hoped for may be secured.

In order to make these patients feel that it is worth while to be under the care and direction of a physician, we ourselves must become more familiar with the treatment and management of this class of patients. The physicians in charge of the sanatorium must recommend and urge a real follow-up treatment. They must teach the same principles—rest, fresh air and proper feeding—and that these remedies must be applied under the direction and care of a physician skilled in the management of tuberculosis. If this is done at the sanatorium, it will inspire confidence in the patient and lead to results that will make the sanatorium treatment more permanent and more effective. There is real need for this supervision of the patient after leaving the sanatorium. Failure in the past on the part of the physicians outside of the sanatorium to try to keep these patients reporting regularly has, I think, been partly due to reticence on the part of the physicians in having patients report for whom they seldom wrote prescriptions, but simply gave advice. This is wrong. Visits with proper encouragement being given if the patient is doing well, or to correct the trouble if losing, are needed.

I feel that a physician doing general work is a good one to look after the tubercular patient. The fact that a man has tuberculosis, or has had it, does not render him immune from all disease. These patients are subject to other diseases, and this must be borne in mind. When other diseases complicate tuberculosis, the general indications in treatment for the new condition with slight adjustment necessary to meet the tubercular situation can be administered by the general practitioner, if he will only acquaint himself thoroughly with the diagnosis and treatment of tuberculosis. He is largely familiar with it. He can recognize tubercular complications as well as diagnose the original tuberculosis, which he often does. A good tubercular specialist must know

*Read by title before the fifty-seventh annual meeting of the Medical Society of Virginia, at Norfolk, October 12-15. Also read later before the Stuart Circle Clinic Club, December, 1926.

general medicine, so the good physician must know something of tuberculosis. Where assistance is needed in treatment or in determining the nature of a complication, it would be well to consult a tubercular specialist, just as the difficult or borderline cases are sent in to him in the first place for his diagnosis.

"Under the direction and care of a physician skilled in the management of tuberculosis" would have its good effect in that there would be a follow-up treatment in the home, and here I strike an important keynote. I have seen a few patients who cannot take sanatorium treatment. They do not possess the nervous make-up (temperament) for an institutional existence and can never adjust themselves to it. These patients do far better at home. The home is the place wherein the patient lives after discharge from the sanatorium, during the re-adjustment from institutional to home life; the period from arrested, or apparently cured, to cured, corresponds with this time. Regulation of the patient's life—rest, work, or exercise, and food—should be under the care of a physician.

I want to call attention to a few salient points, which may help the physicians doing this work. The general practitioner must school himself in patience, because in dealing with these patients he will find a type of nervousness such as chronic cases develop. The patients, too, must be taught patience. They must realize that a space of two years must pass from the time they are pronounced arrested, during which time they are doing their regular work or following their usual manner of life while remaining symptom free, before they can be pronounced cured. In this time also they need supervision. The patient must feel that the visits to the physician are complete. The examinations must be carefully made and due consideration given to the measures suggested. They must feel that the physician is interested in their welfare.

The physicians must not hesitate to give this service freely. They must recognize that next to the prevention of disease, preventing a relapse in those who have had tuberculosis or been ill, is likewise their duty. This is thoroughly in accord with the idea of modern public health work. The physicians of today, although they may be engaged in private practice, are always working in conjunction with public health officials, health organizations, and, in my opinion, physicians will be mak-

ing another step in this direction by the furtherance of the doctrine of rest, fresh air and proper feeding under the direction and care of a physician skilled in the management of tuberculosis.

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THE EVOLUTION OF MEDICINE.*

By GEORGE A. CATON, M. D., New Bern, N. C.
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*Fellows of the Seaboard Medical Association,
Ladies and Gentlemen:*

In casting over the waters for a subject which would be interesting to the lay mind as well as to physicians, I have chosen as my subject "The Evolution of Medicine."

There are books and articles running into thousands dealing with various phases of evolution as regards the vegetable and animal kingdoms, but as I see it, there is no more interesting thing than the evolution of medicine.

The constant striving, the self-sacrifice of physicians and surgeons, even to the point of martyrdom in innumerable instances, for the advancement of the healing art of their choice, and which sacrifice might conduce to the saving or prolongation of human life, constitutes one of the most important chapters and interesting phases of human endeavor.

About 3500 years ago the first prescription was written with a brush on stone, evidently for stomach disturbance of reflex origin, and quite likely for hyperacidity, as the symptoms described were "a ball in the throat." To this day this symptom is often recounted to gastro-enterologists and, upon examination, one finds hyperacidity.

Paleopathologists produce definite proof of the existence of syphilis and tuberculosis of bone tissue which existed thousands of years ago. Diseased processes are as old as life itself.

Distinct evidences of tumors are found in the Rock Chalk of Kansas; evidences of bacterial infection are found in the mummies of Egypt; so that diseases of the same types as exist today, we are quite certain, existed from the time that the earliest form of human organism existed on the earth.

The cave men suffered from gout and arthri-

*Address of the President delivered before the Seaboard Medical Association of Virginia and North Carolina at the thirty-first annual meeting at New Bern, N. C., December 7-9, 1926.

tis bringing about deformity of bones. In 3200 B. C., Pto Hateb advised his son to beware of sex dangers.

Hippocrates advised to cure first by medicine; if medicine fails, resort to the knife; if the knife fails to cure, then by fire, meaning, of course, the actual cautery.

The Hindus long before Christ operated extensively; they had numerous instruments and were regarded at that time to be skillful in the art of healing by surgical means.

Chinese early medicine is interesting on account of dry cupping and massage. Massage and cupping were in later periods practically ignored, but were revived as adjuncts to cure of various diseases in the eighteenth century. Today massage skillfully done has certainly a rightful place in the healing art, and has come to stay.

Medicine is divided into Pre-historic, Greek and Roman medicine, Mediaeval medicine, Physiologic medicine, Paracelsus medicine, Pasteur medicine and Scientific medicine.

The earliest physician of whom we have record lived 4500 years before Christ. This physician was a Greek and prescribed or administered opium, gentian, castor oil, etc.

It seems from what one can gather from ancient medical literature, that charms, incense, incantations, etc., were employed as a means of cure, by driving away disease which was in a large measure due to the existence of the evil spirit.

Later, there were witch doctors who were often burned at the stake—really, as a matter of fact, some were burned who had effected creditable cures. These were regarded as conjurers and were burned even at much later periods.

Scientific medicine may well be said to have begun in the time of Hippocrates, who was born on the island of Cos in the year 450 B. C. He lived in an age of great men and in a time when intellectual fortune seemed to have smiled on a group of his contemporaries. Such deep and earnest thinkers as Socrates, Plato and Herodotus were contemporaries of his.

From Hippocrates comes the aphorism that art is long and time is short and judgment difficult. Hippocrates had the true medical heart.

The greatest single contributor to scientific medicine in the renaissance period was Vesa-

lius, a Belgian, a great anatomist and surgeon. This great man opened the chest of a nobleman for purposes of dissection, found his heart still beating, and in reparation, made a pilgrimage to the Holy Land, but was shipwrecked and perished on his return voyage.

It seems that the Italians have from early times held a dominant place among the nations, as is evidenced by there being so many anatomical structures named after their discoverers.

In the 18th century great advances were made in medicine from 1700 to 1799. The circulation of the blood was discovered by Harvey during this period.

In 1842 ether was discovered by Crawford Long, who practiced in Jefferson, Ga. Chloroform was discovered about this period, but the honors for the great discovery must be divided between France, Germany and America. Other anaesthetics, such as ethyl chloride, and local anaesthetics, as cocaine, procaine and so on, came at a later date.

It will be recalled that in the early days major operations were performed, but the patients were held by force or were securely strapped on the table.

William Hunter lived from 1718 to 1783. He was a great English physician and anatomist. William Hunter discovered the primary lesion of syphilis which is to this day called the Hunterian chancre.

In the eighteenth century much work was done in comparative anatomy and embryology, thereby laying the foundation for the later period when medicine would be placed on a higher plain of pure science.

Chemistry, general and physiologic, at this time began to take form on a basis conducive to the later period when intricate, physiological and metabolic problems could be solved. Pathological anatomy, also another advancement in laying the foundation for a better medicine, began to take form. Materia medica and therapeutics likewise came on the scene about this time.

In the nineteenth century cellular pathology was developed by Virchow. Some time later Pasteur laid the foundation for the study of microbic activity, this perhaps being the most far-reaching discovery in medicine. Psychiatry took form in this century and has since made wonderful strides, until at the present time it has a distinct field in the healing art.

Ricord's influence just now became more or

less dominant in regard to venereal work, and he corrected some of Hunter's unfortunate mistakes.

Laennec solved the problem of the meaning of the different sounds in the chest, one of the greatest discoveries of this century, enabling physicians to diagnose pneumonia, tuberculosis, pleurisy, and so on. Laennec also did other valuable diagnostic work, gradually, as were others, bringing truth out of chaos, and evolving theories which were later proven to be facts. It was then, and now, regarded that Laennec was one of the great five or six wonderful medical men of modern times.

To Claud Bernard we are indebted for foundation knowledge of the functions of the ductless glands, that is the internal secretions.

In the first half of the nineteenth century Alexis St. Martin, a French Canadian, suffered from a gunshot wound, which left an opening in his stomach, through which the digestive processes could be observed. This was really the foundation for the scientific treatment of digestive diseases.

Claud Bernard was probably the greatest medical investigator of the nineteenth century. To him we owe the idea of internal secretion. He made investigations in internal medicine which challenge the pride of great internists even to this day. It was he who said, "When you enter the laboratory, put off your imagination as you would put off your overcoat, but put it on again as you would your overcoat when you leave the laboratory. Before the experiment and between whiles, let your imagination wrap you round; put it right away from you during your experiments, lest it hinder your observing power."

Claud Bernard was never a money maker—just devoted to science and the love of the healing art, a virtue that we should all cultivate.

Professor Paloff, of St. Petersburg, was great in scientific investigation as regards gastric and intestinal diseases. He, perhaps, has done more for the solution of pancreatic diseases than any man in the profession.

Pasteur showed that disease is not of spontaneous origin, but that disease originates from minute organisms, thus laying the foundation for a great revolution in medicine and surgery. Previous to this time infections of all kinds were rife. When one died, for instance, of gangrene of the intestines, or was otherwise in-

fectured, it was simply called mortification—even in my recollection such causes of death were classed as mortification.

Now the profession recognizes gangrene or septicemia and the necessary surgical operation is done, and in many instances life is saved or prolonged.

The spleen is resected, the gall-bladder is removed, sections of the intestine are removed, and innumerable other life-saving operations are done, reflecting great credit to the profession of surgery.

Neurology has come into its own. Nerve grafting to revive muscular function is an established surgical fact. The lame are made to walk, the deaf are made to hear, the blind are made to see, thanks to modern scientific surgical development.

The great pioneer in neurology was a Frenchman, Duchenne, while the Germans have contributed invaluable work in neurological surgery and in medicine.

Sterilization of hands and instruments is of comparatively recent origin; listerism, however, has come to stay. No longer will a surgeon dare operate unless under the most careful aseptic precautions.

John B. Murphy, one of the great outstanding figures in surgery, has done wonders in placing the profession on the very high plane upon which American surgery rests today. The profession recognizes a great loss in his death.

With the growth of medicine and surgery has come, surprisingly, the amazing development of quackery and, strange as it may seem, the national, state and municipal governments have not taken cognizance of this, but have allowed it to grow rampant. The people have fallen for it. Really, the people have become ridiculous in regard to the various forms of quackery and charlatanism—I mean many of them intelligent people. Strange as it may seem, we have more than a hundred healing religions in this country without a vestige of scientific basis.

In New York, a man did a very good business with radio by curing people for one hundred dollars per treatment, though, when he was arrested, it was found that the wires were wrongly connected and one could not have heard a clap of thunder one mile away over it.

We have now arrived at the point in medi-

cine and surgery when we are on a ninety per cent scientific basis.

Smallpox, once the scourge of nations, has been robbed of its terrors; the death knell has been sung to this malady. Yellow fever has devastated communities and nations, but the deadly mosquito has sung her last tune.

Malaria, the sickening odor of which still lingers, the dread of all of us, and a material cause of lessened mental and commercial progress in tropical and semi-tropical countries, has been practically eliminated. Today we gloat over our victory of this dreaded disease and because untold thousands of lives have been spared. We must thank our great Benefactor for this great work as well as ourselves. We must also thank Him for smiling children, red-faced and mentally and physically fit, because of elimination of hookworm. The John D. Rockefeller Foundation has worked wonders in the Southern states.

Diphtheria has practically disappeared. We occasionally see a placard, but not so often. Formerly, entire families were wiped out and homes were made unhappy and miserable.

Typhoid fever and cholera and typhus, although once prevailing in the summer and fall months, are now comparatively rare. Surgery as regards pathological conditions resulting from these infectious diseases must become less often resorted to.

The average span of human life, due to scientific medicine and to the great advances in public health work, and, last, but not least, to the benefactions of great philanthropists, has been increased by ten years in the last half century.

Syphilitic bones and other tissue infections are disappearing. The terrible and disastrous results of this scourge, both mental and physical, will soon, in great measure, be an unknown quantity. Even tuberculosis, the great white plague, is now regarded as curable, whereas, formerly, it was regarded as an incurable disease. One could only hold up his hands and say that nothing could be done, it is only a matter of time. Tuberculosis in North Carolina, and especially in Eastern North Carolina, is not so very often seen. I have often wondered why greater advances have not been made in the development of especially equipped institutions for the treatment of this disease.

I believe Eastern North Carolina to be one

of the greatest fields for sanatoria devoted to this particular field of medicine, because natural climatic conditions are here conducive to cure.

Just here I must commend the great constructive work done by the State Board of Health of North Carolina. Nothing could be said in eulogy of this great constructive health work which would be egotistic, because untold thousands of human lives have and will be saved. I am inclined to think, if this great constructive health program be followed, that our great and beloved state will soon be overpopulated, and that prospective physicians will take to farming and other fields of endeavor which will at least offer a probable prospect of decent support. The great productivity of soil and the wonderful fertility of our people must, of course, be considered.

Cancer, although its cause is not yet definitely known, is gradually yielding the mighty strength of her deadly tentacles and within a few years will doubtless be as docile as a little child when properly approached. The many thousand of lives lost annually will be saved. When this great achievement has been accomplished, the world will be glad, humanity will rejoice. One of the latest and greatest medico-surgical problems will have been solved.

Insulin, Banting's Triumph.—Only a short time since, F. S. Banting, with Prof. J. J. R. McLeod, of Toronto, Canada, was awarded the Nobel prize for the discovery of insulin. This preparation is used in the treatment of diabetes mellitus, and is one of the greatest discoveries in medicine of modern times. Now, a case of diabetes mellitus, properly dieted and with insulin administered as it should be, may live out his or her period of normal expectancy. No longer need one be so despondent or apprehensive as in years gone by. One may look the world in the face and fight on. Yet a physician must be careful in the administration of insulin. It is an exceedingly active protein, and one must take this into account, as well as the personal metabolism and the individual idiosyncrasy.

In conclusion, I must add a word in behalf of our wonderful Rankin, who has been in charge of our health department for some years and who, by virtue of kindness of heart, was loaned to the great State of New York in 1925. To my mind, there has never been so

great a health executive in our good state as this man Rankin. State medicine, purely a constructive measure, has been revolutionized. Untold lives have and will be saved. Rankin, the great constructive health genius, is in a great measure responsible.

Duke University, one of the most, if not the most richly endowed university in the United States, is now one of the factors to be reckoned with nationally as regards constructive medicine. This great institution will go on in constructive medicine for ages and ages and men now unborn will eulogize this great benefactor for the relief of pain and illness and the saving of human life. Perhaps no greater man has lived in this Commonwealth.

THE DIFFERENTIATION OF NON-TUBERCULOUS PULMONARY INFECTION FROM TUBERCULOSIS.*

By C. L. HARRELL, M. D., Norfolk, Va.

Prior to the influenza epidemic of 1918-19, very little attention was being paid to non-tuberculous pulmonary infections, except to call them tuberculosis and treat them as such. My attention was first called to the subject by Dr. John B. Hawes, II, of Boston, while working in the Massachusetts General Hospital in the early part of the winter of 1919. Many cases were coming into his chest clinic with a previous diagnosis having been made of tuberculosis. The only symptoms were severe cough, expectoration, with signs in the base of the lungs, with a persistent negative sputum. To use his words, his job was to undiagnose tuberculosis.

There is no doubt in my mind at the present time but that many cases are being called tuberculosis that are not, and many cases of clinical tuberculosis are allowed to go unexamined without a correct diagnosis having been made. They go about the community untreated. This is my excuse for presenting this paper; to ask for a closer study on the part of physicians on those cases that present themselves for examination, for without close study a correct diagnosis cannot be made, nor the best results obtained.

For instance, a case comes in complaining of a hacking cough and tired weak feeling. He or she must have something radically wrong or they would not consult a physician. Because

you have known and treated the family for years, you reply, "there is nothing wrong with you," give them some simple remedy and dismiss it. Now this case has, or will in the near future, develop pulmonary tuberculosis. You have not only caused him to lose his chance of a cure, but have done the community a great injury. On the other hand, a case consults you complaining of a very annoying productive cough. You make a casual examination of his chest and find many rales of various descriptions in the lower lobes of the lungs. You pronounce him tuberculous and send him to a sanatorium, his real trouble being a chronic bronchitis secondary to an upper respiratory infection. He will never get well of his bronchitis until the focus of infection is removed. You have not only placed a stigma on this individual that will probably last him throughout life, but you have put him to a great expense and a loss of time, both from his labor and from being restored to normal health.

Drs. Brown and Heise, in 1924, analyzed 2,000 cases that had been discharged from Trudeau Sanatorium from 1916 to 1923. Clinical pulmonary tuberculosis was found to exist in 1,725 cases. Non-clinical pulmonary tuberculosis in 11. The diagnosis remained somewhat in doubt in 61, and a negative diagnosis was made in 203. Drs. Brown and Stafford, of the Blue Ridge Sanatorium, analyzed 1,000 cases discharged from the sanatorium in the past three years. In 70 cases no tuberculosis was found. In 37 cases no chest pathology at all was found, 27 in adults and 10 in children. Thirty-three were due to non-tuberculous pulmonary infection. Having these facts in mind, I think we can review this subject with much benefit to all of us, for I have not one new thought to present.

For the sake of clearness, I will cite a typical case of early tuberculosis. The patient comes in complaining of a tired, run-down feeling, loss of energy, dry hacking cough, usually worse in the morning, rather rapid loss of weight. He may or may not give a history of hemoptysis or pain in the chest and across the shoulders. A careful history may bring out nervousness, digestive disturbance, restless nights, probably night sweats, a cough dating back several weeks, probably following a prolonged cold, with a slight sticky muco-purulent expectoration, a sense of heat

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or flushing in the cheeks in the afternoon, which they attribute to fever. Examination reveals a rather sickly, undernourished looking individual. Pulse usually from 90 to 120, temperature 99 to 100. Maximum usually reached late in afternoon between four and eight. Blood pressure systolic 100. Has usually dropped from five to ten pounds in weight in past two months. The gums are usually diseased and may show extensive pyorrhoea. The larynx has a blanched or anemic appearance and the patient gives a general appearance of being in poor health. The chest shows slight lagging of one apex with slight dullness to first or second rib in front and fifth dorsal spine in back. The breath sounds are harsh and expiration is prolonged over this area, with numerous fine and medium moist rales heard best at end of forced inspiration. On expiratory cough, showers of fine moist rales are heard bursting right under your stethoscope and spreading in all directions. They may be likened to a skyrocket bursting in the air at night. This type of rale is pretty characteristic of a tuberculous lesion. A sample of sputum collected in the early morning may show tubercle bacilli. By early morning, I mean something heavy and thick that is coughed up around five or six A. M. During the night there is always some exudate thrown off in the bronchi. That exudate collects low down in the throat and is usually coughed up early in the morning. If there are any bacilli to be found, they are usually in this sample. I also might state that a sample of sputum from these cases, as a rule, does not show much mixed infection. An X-ray of this case will probably show some peribronchial thickening radiating from the hilum zone to the periphery and into the apex, with some studding and density in the first interspace. This I consider a fair description of a typical early tuberculous case.

The first condition I wish to differentiate from tuberculosis is a post-influenza bronchitis. These cases usually complain of a rather severe cough, generally continuous throughout day and night, may be paroxysmal at times. Expectoration is usually rather profuse, thick and yellow. As a rule these patients do not look very sick. There is only a slight, if any, elevation of temperature and pulse, no loss of weight, and blood pressure is normal. The patient is very much con-

cerned about this harassing cough. The mucous membrane of pharynx and larynx and trachea are very much injected and swollen. The veins at base of tongue are usually very much swollen. This redness and swelling may follow the mucous membrane all the way down to the small bronchi. Lord, in his recent book, states that this inflammatory swelling of the smaller bronchi may even lead to closure of the lumen and atelectasis of the corresponding pulmonary region. This inflammation may extend through the bronchi of both lungs or to one lobe only, or to a portion of a lobe. In other words, it may be bilateral or unilateral. It is usually bilateral in the acute disease, finally localizing itself in one lobe or a small section of a lobe, usually at the base in the latter stage. Examination of chest reveals no dullness, breaths sounds rather harsh over the non-affected part, due probably to an emphysematous condition, the results of coughing, with many medium and coarse and medium bubbling rales heard, both on inspiration and expiration, usually confined to the base of one lung. Several sputum examinations are negative for tubercle bacilli, but it is loaded with influenza bacteria, pneumococcus, streptococcus and many others. X-ray of this chest is usually negative. If the condition has been going on for some time, there may be some peribronchial thickening, extending from the hilum zone downward toward the base of the lung. The cough and physical signs of this condition may persist for several weeks, but usually clear up entirely. This is entirely different from the preceding case of tuberculosis. However, this type of case should be watched carefully, as it may cause a flare-up of an old tuberculous lesion. I never consider a sputum negative until at least three specimens have been examined. Some sanatoriums usually examine nine sputums.

The next condition which I will consider is chronic bronchitis, secondary to a nose and throat infection. This condition probably furnishes the largest class of cases we have to contend with in this section. These cases usually give a history of frequent colds, usually from four to five during a winter; some are never free. The infection is harbored somewhere in the accessory sinuses, or abscessed teeth or tonsils. Their resistance is low. The least change from the ordinary, such as loss of sleep, exposure to dampness or cold, will

cause a fresh cold or a re-infection. There is no doubt that an abscessed tooth can act as a focus of infection for the lung and bronchi, just the same as it does for a joint or a kidney. The same might be said of diseased tonsils and of the different sinuses. In the cases of nasal obstruction and sinus disease, there is a constant irritation in the throat from secretions or exudate which have accumulated on the post-pharyngeal wall. This infection usually drains through the lymphatics down to the glands of the chest, as the mediastinal glands, those of the lungs and bronchi. These glands hypertrophy, and through pressure and irritation produce a cough. There is a great collection of mucus and pus in the bronchi below the glands, producing stagnation. The mucous membrane is thick and indurated. There is cellular infiltration of all parts of the bronchial wall. The thickening and induration may extend to the peribronchi and neighboring pulmonary tissue, according to the chronicity of the disease. Usually, each acute cold will cause these already enlarged glands to swell up and more mucus and pus accumulate in the bronchi as the result of pressure and irritation. I might say that this type of cold is not usually contagious. They seem confined only to the individual. During an acute attack these patients usually have a very severe cough and raise a good deal of muco-purulent sputum. The cough, at times, may be very severe and become asthmatic. I have seen many cases of real bronchial asthma, following chronic infection in the ethmoid and antrum. A cough, both in the preceding condition and the chronic bronchitis, is usually very much aggravated by all forms of dust and smoke, especially by smoke from smouldering cigarette stumps, cigar stumps and burning grease from the kitchen. I have also noticed the dust on old books is very aggravating to the mucous membranes of the nose and throat.

These patients complain of numerous, but rather indefinite, chest pains. In the region of the pain the skin is generally sensitive to pressure. Evidently they are muscular pains. The sputum is heavy and thick and contains all kinds of bacteria, but no tubercle bacilli. The pulse and temperature are usually normal, that is between acute attacks. Blood pressure normal. No loss of weight. The patient as a rule looks well, and is well except for the

frequent colds and the cough produced by the attacks.

The chest is well developed, and is resonant or hyper-resonant throughout. The breath sounds are very harsh and expiration prolonged over the entire back of both lungs, with many coarse and squeaking rales heard over the back, increasing in intensity as one approaches the base. The X-ray finding in this type of case is usually negative, or nothing suggestive of a density that is seen in tuberculous conditions.

Treating this type of case without first removing the focus of infection is of no avail. Cleaning up the nose and throat, changing to a dry climate, rest and nourishing food is probably the best kind of treatment. Sometimes, an autogenous vaccine helps to raise their resistance. The type of vaccine that I use is made according to the technique of Solis Myer Cohen, of Philadelphia. This is grown on the patient's own blood serum. He claims it is the only way you can get a growth of an organism that is pathogenic to the individual. This type of case seldom, if ever, develops into tuberculosis, but many of them are classified as such. However, many of them do carry a chronic cough and many of them develop into asthmatics. It is necessary to search diligently for the focus of infection whether it be teeth, tonsils or accessory sinuses, and rid the patient of same.

I have been referring chiefly to adults, but you get a similar condition in children, both in white and colored, but rarely in the colored adult. Why this difference, I do not know.

In the first case cited, a typical case of tuberculosis, the lesion was found at the apex, and this is usually the case in tuberculosis. In the last two conditions, the post-influenza and chronic bronchitis, the physical signs are confined entirely to the base or lower lobes of the lung. One would conclude that tuberculosis originates at the apices, while non-tuberculous infections are confined to the base, although sometimes the exact reverse is true. I recently had two cases where the primary lesion appeared to be in the lower right lobe, that proved to be tuberculous. Dr. Watson reports 500 cases from Mount Regis Sanatorium in which he has found 12 cases with primary lesion at base of lung. Dr. Nicholls states that of 3,000 cases discharged from Catawba Sanatorium, there were 26 cases of primary bas

tuberculous lesion, 8 non-tuberculous basal lesions, and one questionable. Dr. Stafford analyzed 1,000 cases at Blue Ridge Sanatorium and found two basal primary lesions. In a recent correspondence he has found two more, making four. Other authorities claim that they are rare, but, when found, are usually more grave on account of poor drainage. All advised pneumothorax from beginning. make it a rule never to diagnose a lesion at the base of a lung tuberculous without a positive sputum, regardless of physical signs or X-ray findings.

On account of the anatomic relationship between the lungs and the pleura, one would never think of infection of one without associating it with the other, yet we have many cases of acute pleurisy, or pleurisy with effusion, where the lung does not seem to be involved. An infection in one is almost of necessity compelled to spread to the other. Often, the acute inflammation makes its first appearance in the pleura; from there it makes its way through the lymphatics to the lung. The exact cause of pleurisy is a moot question. Many believe all attacks of real pleurisy to be tuberculous. The writer thinks that an attack of pleurisy is often produced by the starting up of an old infection in the mouth and upper respiratory tract, as extracting abscessed teeth or removing of diseased tonsils. All advanced cases of tuberculosis and many acute cases are accompanied with pleurisy, but all attacks of pleurisy are not by any means tuberculous. An acute attack of pleurisy usually makes its appearance with an acute pain in the chest in the region of nipple and extending around towards the axillae and back, made worse by deep breathing or any movement of the intercostal muscles. With the pain we usually have a slight cough and rise of temperature. Often no physical signs are heard at all or you may get a few sticky rales or a friction rub. If during an attack of pleurisy there is a sudden cessation of pain, you may rest assured that fluid is beginning to accumulate. If the aspirated fluid is clear and negative to culture it is usually considered tuberculous. If cloudy and a growth is obtained on culture, it is usually considered non-tuberculous.

It is the writer's opinion that every attack of pleurisy accompanied with rapid pulse, rise of temperature to 100 or more and lasting over a week should be handled as a tuber-

culous case. All cases of pleurisy with effusion should be treated as an active tuberculous case until proven otherwise. Various authors state that from 40 to 60% of cases of pleurisy with effusion, even though no pathology is detected in the lungs, either die or develop pulmonary tuberculosis within six years.

Many cases of unresolved pneumonia present puzzling problems. It is true that many cases of tuberculosis may be traced directly to a severe attack of pneumonia, which may cause a flare-up of an old tuberculous lesion. This may be the source of many of our lesions found in the lower lobe. It is equally true that you may have an unresolved pneumonia in the upper lobe or lower lobe, with a cough, some expectoration, slight elevation of temperature, with physical signs, slight dullness and rales, and will even cast a shadow under the X-ray, with a persistent negative sputum, that are not tuberculous. Many of these cases may run on for months and finally clear up entirely, but they should be kept under very close observation with frequent examinations of sputum.

Abscess of the lung is usually caused by inspiring foreign bodies of septic material during operation about the mouth or nasopharynx. Jackson reports several cases where teeth were removed from a bronchus following tonsillar operations under general anesthesia. One gets a history of cough, pain in chest, rise of temperature, coming on five or ten days following operation. In from ten days to two weeks they begin to raise a foul smelling sputum which is negative for tubercle bacilli. In the early stage the physical signs are practically nil. You may get some slight dullness with diminished breath sounds over the part of the lung that is blocked off. When suppuration and softening take place you get more dullness and numerous medium moist rales over the affected part. An X-ray casts a shadow of a consolidated area in the lung. This should not be mistaken for tuberculosis, but it very often is. Careful history, with the location of the lesion and a negative sputum should be sufficient to clear up the diagnosis.

Pulmonary infarct may be classed under abscess of the lung. This is usually caused by a small quantity of septic material lodging in a bronchus or blood stream. It is usually followed by acute pain in the chest. In about twenty-four hours there is a sudden rise of

temperature, severe paroxysmal cough and they usually raise pure red blood. There is an area of dullness over the region of the pain, with a greatly diminished or absent breath sounds, due to atelectasis. If the embolus be of septic material a lung abscess usually develops and they will begin to cough up foul smelling pus in five to ten days. I have recently seen two such cases: one in the lower lobe of the right lung, following phlebitis and treated by pneumothorax, the other in the upper lobe of right lung following tonsillectomy under general anesthesia. This went on to suppuration, but healed spontaneously.

Bronchiectasis, or dilatation of one or more bronchi, is a chronic condition accompanying other chronic diseases, as chronic bronchitis, old cases of tuberculosis or syphilis of the lung. These cases should not be mistaken for active tuberculosis, but they very often are. The patients, as a rule, are in fairly good health, but they have this chronic cough and raise a thick sputum, and of course they are worried about the cough. It is a very difficult condition to diagnose. The cough is usually of long standing, worse in the winter months and usually occurs in paroxysms. They may have two or three attacks a day, as the cavity fills with mucus and pus and has to be emptied. After the cavity is emptied there is practically no more cough until it refills. The physical signs vary according to whether the cavity is emptied or filled. A constant negative sputum and the physical signs are entirely different from that of tuberculosis, and all of them usually have club fingers. The X-ray picture is usually fairly characteristic. These should help to rule out tuberculosis.

Primary cancer of pleura and lung is very rare. Lord reports that of 4,704 cases autopsied at Massachusetts General Hospital, only two cases of primary cancer of the pleura were found. Of the lung and bronchi it is a little more frequent, about one in every 500 sections. Another author reports of a thousand malignant tumors, 1.6 were primary in the lung. I have seen three cases this year, one primary in the bronchus, by section, another clinically originated in the mediastinal gland, and the other in the pleura. The symptoms in the early stage are a non-productive cough, pain in the chest, usually confined to the lower back, and dyspnoea. As the mass increases in size, the cough and pain grow worse and almost

continuous, due to pressure on the nerves and bronchi. There are no characteristic physical signs in this condition, but it will be the same as that found over any solid mass or tumor in the lung. You get a dullness or a flat note, according to the size, absence of breath sounds over the tumor with a hyper-resonant note above the tumor with emphysematous breathing. You usually do get numerous coarse rales and squeaks below the mass. There is a great collection of mucus and pus in the bronchi, due to pressure. Aspiration of the pleural cavity frequently yields a bloody fluid. An X-ray of this condition is fairly characteristic and should never be neglected.

Syphilis of the lung, *per se*, is exceedingly rare. I have seen only one or two cases. It often accompanies other lung conditions, especially tuberculosis, and is rather prevalent in the negro race. Persons with a lung condition with a four plus Wassermann, should be given anti-syphilitic treatment even though they have tuberculosis. The tuberculous lesion will not respond to treatment until the syphilis is first treated. There are no characteristic physical signs or X-ray findings in syphilis of the lung. I have noticed, however, where there was a bunch of enlarged glands around the hilus, which you get in syphilitic conditions, you get a dry whistling rale, heard on inspiration only. I contribute this to pressure of the glands on the bronchus. The air has difficulty in entering the lungs. Once there, it seems to be expired fairly easily. This is the exact opposite of asthma, though the patient complains of dyspnoea, which he calls asthma. When the glands increase to the extent that they cause a collection of mucus and pus below this area in the lung, then you would get the coarse bubbling rales as of chronic bronchitis, and this may cast a shadow similar to that of abscess of the lung.

After all is said and done, there will be times when your history, physical examination and laboratory findings do not agree. It is then you will have to bring into play your clinical acumen and decide whether this case or that case is tuberculous. Often one will find that his first impression is the safest one.

In conclusion, may I emphasize just a few points. First: In the early case of tuberculosis, the outstanding symptoms are general weakness or asthenia, a dry, hacking cough,

worse in the morning, rapid pulse, loss of weight, afternoon temperature, with a low blood pressure. I have never seen a hypertension in an active case of tuberculosis. The physical signs in this condition are very few and are usually located at an apex. Second: In the non-tuberculous pulmonary infections the patient looks to be in fairly good health, with a rather distressing or annoying productive cough, very little if any loss of weight. Pulse and temperature usually about normal, with a normal blood pressure. The physical signs are out of all proportion to the symptoms, and are usually located in the lower lobes of the lung. Third: A focus of infection in the accessory sinuses or mouth may produce a secondary infection of the lung just as much so as in a joint or any other organ of the body.

I wish to extend thanks to Dr. J. B. Nicholls, of Catawba Sanatorium; Dr. E. E. Watson, of Mt. Regis Sanatorium; Drs. W. E. Brown and J. B. Stafford, of Blue Ridge Sanatorium, for sending me the above statistics.

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Medical Arts Building.

SOME OCULAR FINDINGS OF IMPORTANCE TO GENERAL PHYSICIANS AND SURGEONS.*

By L. O. MAULDIN, M. D., Greenville, S. C.

Of course, practically everything connected with the eye is of interest to all physicians, but there are a few things I wish to bring to your attention this evening which have occurred from time to time in the scope of my work and which I believe have been of great interest and importance to the general men who have been connected with the particular cases under observation.

I do not wish to confine my observations on any case to the narrow limitations of vision that an expert might see through the mere hole of the reflecting mirror of his ophthalmoscope; for this, while important, is not the only thing connected with the study of the eye that

enables one to do his full duty as an oculist and that broadens his field of usefulness in his chosen line of work.

In dealing with cases in this paper, I do not wish to speak of them specifically, but wish to speak of them in a general way, pointing to the salient facts standing out conspicuously in memory's vision as those that would naturally be of most importance to any physician who might have the particular case under observation.

The findings that come under the range of the heading of this paper are due to malignancies, septic processes, arterio-sclerotic changes, toxic absorption and injuries.

MALIGNANCIES

About fifteen years ago a physician of a nearby town brought his twelve year old son to me, referred by another oculist of this city, for examination and diagnosis of a peculiar condition in the left eye. The pupil was dilated and re-acted slightly to light; there was also slight, dull pain with increased tension and loss of vision of the affected eye. On ophthalmoscopic examination, we found on the temporal half of the fundus about midway between the periphery and the optic disc a distinct protrusion, apparently from the choroidal membrane, pushing the retina down into the vitreous. We watched this protrusion for several days and upon the history of the rapid growth and its appearance—especially the general malignant picture under the ophthalmoscope—we diagnosed "sarcoma of the choroid" and advised immediate enucleation of the eye. Further consultation was sought in the city of Atlanta by the child's father and the same advice was obtained. We enucleated the eye and clipped the optic nerve far back. A microscopic examination was made and the growth was found to be a sarcoma which originated in the choroid as a base. The patient healed normally and got well without any metastatic occurrences.

A few years after that another boy was brought to me about a hardened growth in the upper lid of his right eye which started about a year before when a calf with which he was playing threw up his head and caught the boy with its horn under the upper lid and upper part of the orbit, severely bruising the same without materially affecting the eye at the time. When brought to me the child was five years old and this was about a year after the

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accident. At this time there was nothing to be seen but this hardened tumor-like mass beneath the upper lid. It extended back into the orbit above the eye and apparently involved the tunic, seemingly being a thing apart from the lid or eyeball itself. The vision of both eyes was normal and there were no changes observable in the fundus of either eye.

As the tumor was growing of late, I was consulted. I decided to give the child an anesthetic and remove the tumor. I succeeded in removing a portion of the tumor but found that it went so far back into the cavity of the orbit it could not be completely removed without injury to the eye, so decided to send the portion removed to Hopkins for microscopic examination. The report came back, "mixed cell sarcoma". I advised, therefore, complete exenteration of the orbit. This I did, and the little fellow's orbit healed beautifully. This was at a time before X-ray or radium were available for treatment purposes in this part of the country, so I was unable to follow up my surgery with these valuable aids. The child went back to his home in the mountains and I never saw him any more, but was told that a few months afterwards a growth began to appear in the orbital cavity and that the child lingered along with this growth gradually enlarging until it eventually became a tumefied mass almost as large as the child's own head and literally sweated blood. The child died in six months from the time of operation. This case is one of the nightmares of my oculistic career, and I verily believe that under present day methods of treatment, especially with the follow-up of X-ray or radium treatments, the tumor might have been completely destroyed or at least could have been rendered less painful and perhaps life could have been prolonged with more comfort.

Another case that occurred the following year was that of a three year old girl who was brought to me with distinct evidence of an orbital tumor pushing the left eye forward and downward. On account of stretching of the optic nerve, it showed signs of inflammation in the disc—observable on ophthalmoscopy. No other intra-ocular changes were observable. The eye was blind at the time of examination. With the case of the boy just mentioned still lingering in my memory, I sought consultation, and exenteration of the orbital contents was decided upon as the only hope of saving the child's life. I did a thorough exenteration.

The child's orbit apparently healed in about three weeks, but a tumor soon started in this orbital cavity and in three months' time a tumor, sweating blood, was growing out on the side from the orbit as large as a big grapefruit. This case was another nightmare. The tumor was also diagnosed at Hopkins as a mixed cell sarcoma. No follow-up treatment in this case was to be had to destroy the growth.

I do not regard it as being true to science to be always reporting our successful cases and leaving off those with which we are unsuccessful; therefore, I have endeavored to give you a knowledge of these two very unsuccessful cases with the hope that I may be able to deduce from them a few emphatic facts worthy of your consideration.

I wish to say that I have on record other cases of malignancy where the tumor has been confined to membranes of the eyeball, such as the iris or choroid, and enucleation of the eye having been done promptly, the patients got well and staid so.

My observation of the foregoing cases is that where malignancy is confined to the eyeball itself, without the extraneous tissue outside of the orbit being involved, early enucleation cures the patient.

That is Fact No. 1; and Fact No. 2 is that, if the orbital structure outside of the eyeball is involved with malignant growth, the growth has usually definitely become too far advanced before a diagnosis of malignancy is made to warrant one in taking steps to establish a permanent cure. The lymphatics are usually involved before a diagnosis of malignancy is made, and this shows that metastasis has become pretty deep. Fact No. 3, which is important, is that all operations about the orbit for malignancy should be followed up by radium or X-ray treatments in the hands of a man competent to give them. Fact No. 4 is that, after operation for malignancy, we must not let apparently healthy healing of the site of operation lull us into a false sense of security about the ultimate outcome of the case.

SEPTIC PROCESSES

Seventeen years ago when I was taking post-graduate work in some of the London Hospitals and a few years later in the New York Hospitals, little was said about septic processes as a factor in the cause of many ocular diseases. In the past ten years even, many things have

been developed as scientific facts about sepsis and we have had to learn some things over. We have learned a great deal about septic foci of infection, and it is a generally conceded fact that we have had to learn over the tonsil operation. In like manner, we have had to learn over some of our "look-wise" and "talk-wise" knowledge about auto-intoxication. We have had to learn something new about focal infection and, in like manner "get wise" on acidosis.

The trend of medical thought is constantly changing. This, no doubt, is a healthy sign, especially when it is always changing with an advancing stride.

Fifteen years ago iritis was said to be of rheumatic, syphilitic, or traumatic origin, and some of the smartest men and greatest teachers on the eye in London went so far as to advance the idea that all iritis had a background of gonorrheal rheumatism. Today nearly every oculist living who was practicing at that time can tell you emphatically that he has treated hundreds of cases of iritis and uveitis that was due to sepsis in the gums, alveolar processes, tonsils, sinuses, gall-bladder, prostate, seminal vesicles, etc. Some of our cases of optic neuritis also come from septic processes. Some of the cases of phlyctenular keratitis and conjunctivitis in poorly nourished children are directly traceable to septic processes of the gums or lymphoid tissue of the throat. Some cases of glaucoma in the aged are directly due to septic gums and decayed teeth.

The time has come when the medical profession has learned a few things well and one of these things is that rheumatism is caused by septic processes and that many allied eye diseases of rheumatic origin may be completely cured by well directed treatment in conjunction with the cleaning up of the septic foci of infection.

Last month I treated a man forty years old who came to me with a history of rheumatism dating back some six months and without previous attacks. He was still limping at the time of consultation. He came to consult me about his eye. The eye showed intense redness over the ball, deep ciliary injection at the cornea, pupil contracted, tension normal, great lachrymation, intense photophobia and, in fact, practically all the classical symptoms of iritis. Dilatation of the pupil was difficult and, when done, showed areas on the anterior capsule of

the crystalline lens where the iris had been adhered. The adhesions were broken with difficulty as the atropine instilled acted on the fibres of the iris.

The underlying facts in this case were that this patient had quite a number of decayed teeth at the time of first examination, around which the gums were spongy and an exudate of pus could be seen coming from the margins and from some a distinct exudate could be squeezed. I insisted on certain teeth being extracted and on the gums being cleaned thoroughly. When this was done, the patient began to get better of both the rheumatism and the iritis. Of course, I treated the iritis coincidentally with renovation of the gums, but the patient would not have been definitely cured had he not had his gums attended to. I can cite cases of this character that occur very frequently, but this, in particular, illustrates and is sufficient for the purpose.

In the fall of 1921 a man, aged seventy-three, came to me with one eye almost blind and with the other getting nearly as bad. Examination showed increased tension in both, more marked in the left or worst eye. There was a glaucomatous cupping of the left eye disc and a slight cupping of the right disc. The cupping in the left disc from prolonged pressure had this part of the optic nerve almost atrophic and pale as it could be. Patient's blood pressure was 140 systolic and 80 diastolic. Wassermann was negative. His throat was clear of disease but he had about a dozen bad teeth in his mouth, some of which were loose and almost ready to drop out, and an exudate of pus-like material oozing from around all the teeth, especially the loose ones. I prescribed muriate of pilocarpine for eye drops and directed a cleaning up of the gums and teeth before doing an iridectomy. The patient went to the hospital and had all his teeth extracted, the gums curetted where necessary, and used the pilocarpine drops. In two weeks he noted a decided improvement in his best eye and all the inflammatory symptoms had cleared in both and the tension was decidedly lower. He was soon able to see well with his right eye and the left had improved to such an extent as an impaired optic nerve would allow it. No operation (iridectomy or trephine) seemed to be necessary, and the patient was still improving when I had a chance to see him recently. Vision in right eye is practically normal and tension in both is normal. Thus,

by virtue of relieving the focal infection, the patient has been cured of a severe and blinding disease.

I have on record a number of cases of phlyctenular keratitis and conjunctivitis in children whose tonsils and adenoids have been removed as septic processes, and the eye diseases have cleared up and remained cured.

Under this heading many other cases should be placed, including gonorrheal conjunctivitis, but there is nothing out of the usual trend in these cases as to treatment and results. Before hastening on to the next subject, I must stress the importance of prophylaxis in the new born.

ARTERIO-SCLEROTIC CHANGES

The eye is frequently the first organ of the body to show beginning arterio-sclerotic changes in the general system. The blurring of vision, usually bilateral, the tortuous arteries of the retina, the flamed-shaped hemorrhages along these arteries, the stellate macula, and the choked disc, tell in no uncertain language that serious kidney disease is present and that arterio-sclerotic is far advanced. The boggy retina at periphery, with hemorrhages not along the arteries, but between the vessels, with muddy vitreous, is very suggestive of diabetic retinitis and indicates a diabetes of long standing. The optic neuritis and low grade retinitis is very suggestive of syphilis or a syphilitic toxemia.

Many are the cases in which the ocular findings have absolutely diagnosed Bright's disease; cardio-renal disease with high blood pressure, diabetes, syphilis, etc., have added some very important links to the chain of symptoms that were necessary for a diagnosis to be made.

TOXIC ABSORPTION

Whatever may be the cause of encephalitis lethargica (sleeping sickness) I would like to speak of two cases of this disease in connection with my eye work, under the head of toxic absorption.

A young business man whom I had previously treated and fitted to glasses came to me one day last year complaining of double vision. As I had seen the patient and examined his eyes before and corrected a small refractive error (hypermetropia) about a year previously and was certain at that time there was no muscular amblyopia, I immediately became

suspicious of a central nervous lesion. I found no disturbance in the eye grounds at the time of this examination, but advised him to give his eyes rest for twenty-four hours (for he had been working them hard) and to return for further examination. He returned the next day and seemed greatly concerned about his eyes but little concerned about himself. While testing his eyes for his diplopia it was necessary to ask him a few questions, when he would look as though dreaming and answer a moment later. This showed me distinctly that his case should be studied from many angles and not altogether from the standpoint of his eyes. He went to an internist and from there to Baltimore for treatment for sleeping sickness. I believe that the first symptom in this case of encephalitis lethargica was the bilateral diplopia.

I have on record another case of encephalitis lethargica in a young married woman in whom the disease first manifested itself by a diplopia. The disease is four years past. The patient always had a high degree of hypermetropia with high astigmatism, but there were no ocular changes suggestive of a brain lesion.

It is interesting to note that these two cases started with a diplopia.

Intestinal toxemia is responsible for many of the vitreous opacities called by the physician "muscae volitantes" and called by the patient "liver spots." It is not wise to consider these spots lightly, for frequently there is a background of syphilis from which they may arise.

INJURIES

Fracture at the base of the brain is frequently manifested by a subconjunctival hemorrhage, optic nerve irritation or choked disc, irregularity of the pupils, and sometimes nystagmus. Experience has clearly demonstrated to me that it is worth while, yea, important, to look for these things in all cases of injury about the head.

The South Carolina State Medical Association,

At its meeting held recently, elected Dr. D. Lesesne Smith, of Spartanburg, president, and decided to hold the next annual meeting in Columbia in April, 1928. Dr. E. A. Hines, of Seneca, was re-elected secretary-treasurer for his eighteenth consecutive term.

Bibliotheca Obstetrica

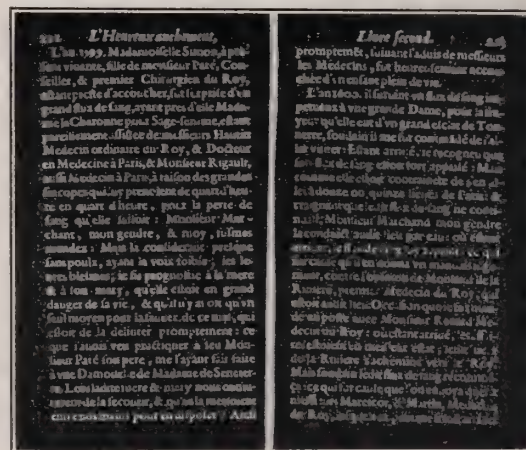
Jacques Guillemeau.

Guillemeau, Jacques, [1550-1612] *De la grossesse et accouchement des femmes. Du gouvernement d'icelles et moyen de survenir aux accidents qui leur arrivent, Ensemble de la nourriture des enfens. Reveu et augmenté de figures en taille douce, et de plusieurs maladies secrettes. Avec un traitté de l'impuissance par Charles Guillemeau, 9 p. 1, 1049 pp., 30 l. 12° Paris, A Pacard, 1620.*

Jacques Guillemeau was a pupil of Riolan,¹ Courtin² and Ambroise Paré. He was especially attached to Paré, and for many years lived in Paré's house and, like Paré, became an Army Surgeon and, later, "premier Chirurgien du Roy." Unlike Paré, however, he had a good classical education and was familiar with the works of Hippocrates, Celsus and Galen. Guillemeau's first publication was a translation into Latin of Paré's Treatise on Surgery (Paris, 1582).

His "Traité des Maladies de l'oeil" was translated into English, German and Dutch. The Army Medical Library catalogues the following editions of this work: Paris, 1585; Dordrecht, 1597; London, 1662; Amsterdam, 1678; Dresden, 1706; Dresden, 1710. In obstetrics Guillemeau followed his master's teaching, developing the operation of version and accouchement forcé, and, in 1599, by a strange coincidence was able by this operation to save the life of Paré's daughter when she was taken with a severe ante-partum hemorrhage. Our interest in Guillemeau's writings is that he definitely fixes on Paré the credit of accouchement forcé which otherwise would have gone to Louise Bourgeois who, in her book published in 1609, claims to have originated this operation. She says, however, that she did not use the operation prior to 1602. Guillemeau, on the other hand, says that he had seen Paré and Hubert induce labor in these cases as early as 1584. Paré makes no mention of the operation and this seems strange to us nowadays who are so eager to rush into print with anything that has the least tinge of novelty. The style of medical literature in the 16th and 17th centuries was entirely different, running rather to contro-

versies and the reciting of cures, but with precious little details as to procedures. Paré, for instance, talks of delivering live infants by version, something entirely new in the



world, as he had seen his brother barber surgeons, Thierry de Héry and Nicole Lambert, do. And Guillemeau tells of delivering placenta previa cases by manual dilatation of the cervix and version as was taught him by Paré. The reader is left to judge of the technic solely by the results reported.

Charles Guillemeau, the co-author, was a son of Jacques. He was born in Paris in 1588 and died in 1656. He was at one time *premier chirurgien du roi*, but later gave up surgery to become a doctor in medicine. He is commended by Guy Patin for his stand against the Arabian pharmacy. Patin seems to have been very fond of him and dedicated to him a collection of discourses that he edited. Yet he quotes the King to the effect that Guillemeau was a wily courtier, who greatly desired to make a fortune.

M. P. R.

Correspondence

Dental Program "Put Over" for School Children.

Athens, Ga.

May 16, 1927.

TO THE EDITOR:

No doubt, you will be interested in knowing that we can boast of having the first city in the world, that has had a 100 per cent dental correction program completed among the white public schools. A week ago the last of the Athens schools went "over the top".

1. Riolan was professor of anatomy, but is chiefly remembered because he ridiculed the election of Pare to the College of Master Surgeons, and opposed Harvey's new idea concerning the circulation of the blood.

2. Germain Courtin lectured on surgery in the Faculty of Medicine of Paris.

At the beginning of the year the Dentists, the Department of Education, and the Department of Health held a conference to discuss this plan in general. The School Board voted a holiday to the school that secured 100 per cent correction.

A card stating that the child needed no dental work or that all necessary dental work had been done, was printed and given to each pupil for the signature of his dentist.

Talks were made and literature distributed by the health workers in the schools, clubs and churches. Each teacher wrote on the board the name of each child as he brought back his dental certificate. When 90 per cent of the children in a school were on the corrected list and a holiday was so nearly in sight the other 10 per cent had to fall in line for self protection. The dentists, of course, did much charity work or work below their regular prices.

In any place where the Dentists, the Department of Education, and the Department of Health unite, this campaign can be easily put across, and we hope some Virginia city will put this program across next year.

B. B. BAGBY, M. D.,
Health Commissioner.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Report of Washington Meeting.

The Woman's Auxiliary was greatly encouraged at the meeting of the American Medical Association in Washington, on May 16th to 20th. Not only has the Auxiliary won the approval of the House of Delegates of the A. M. A., but there came complimentary remarks voluntarily from them on various occasions. At one meeting of the delegates, the speaker said "The Woman's Auxiliary has rendered valuable service to the A. M. A. in bringing the medical profession together and causing them to organize medical societies throughout the United States."

The editor of *Hygeia* was most grateful and complimentary to the Auxiliary for its work in the circulation of the A. M. A.'s health magazines, *Hygeia* and *Happy Land*.

Mrs. John Oliver McReynolds, of Dallas, Texas, president of the Woman's Auxiliary and her official family were invited to appear before the A. M. A. House of Delegates and were received with a great deal of enthusiasm. There was much applause when Mrs. McReynolds explained the aims and policies of the Auxiliary, pledging the woman's motto, SERVICE.

The Auxiliary president was also invited to receive with the presidents and their wives at all functions and receptions.

For the first time, the Auxiliary felt it "had arrived". At this meeting, it realized what a huge organization had grown from that small group of women of four years ago. The attendance was enormous and enthusiasm very great.

REPORT OF THE WOMAN'S AUXILIARY TO THE
MEDICAL SOCIETY OF VIRGINIA TO THE
A. M. A. AUXILIARY IN WASHINGTON
MAY 18.

The Virginia Auxiliary was organized in October, 1923, with an enrollment of only 25 members. December, 1926, shows a membership of 350 with eight auxiliaries and twelve counties represented.

There is a hearty co-operation with the Public Health officials, Parent Teachers' Associations, and Woman's Clubs.

"*Hygeia*" subscriptions have been doubled.

Interest has spread over the entire State, principally through the co-operation of the VIRGINIA MEDICAL MONTHLY whose editor has given the Woman's Auxiliary a column and each month during the year there has been published an interesting article for the doctors' wives.

The Chairman of Medical Legislation for Virginia has asked the Auxiliary to co-operate with the proposed District Professional Relations Committee for the purpose of educating the public and the law makers to secure constructive legislation regarding support of the Medical Practice Act.

This Woman's Legislative Committee did splendid work in helping to defeat the Chiropractic Bill, which was presented twice last year.

The outlook for the future in Virginia is very good.

Following the Washington meeting, Mrs. McReynolds, National president of the Auxiliary, and Mrs. Southgate Leigh, State president, stopped in Richmond, and were entertained by members of the local auxiliary. The following Monday evening, the Norfolk Auxiliary entertained Dr. and Mrs. McReynolds, the Norfolk County Society having given this evening's program over entirely to the Auxiliary. Both occasions were most enjoyable for those attending.

The Truth About Medicine

In addition to the articles enumerated in our letter of March 28th, the following have been accepted:

- Abbott Laboratories
 Tablets Triturates Ephedrine Hydrochloride—Abbott, $\frac{1}{2}$ grain.
 Capsules Ephedrine Hydrochloride—Abbott, $\frac{3}{4}$ grain.
 Ephedrine Hydrochloride Solution—Abbott, 3 per cent.
- Parke, Davis & Co.
 Glaseptic Ampoules Mercury Salicylate—P. D. & Co., 0.065 Gm. (1 grain).
 Glaseptic Ampoules Mercury Salicylate—P. D. & Co., 0.13 Gm. (2 grains)
 Glaseptic Ampoules Mercury Succinimide—P. D. & Co., 0.01 Gm. ($\frac{1}{10}$ grain).
- Sigurd E. Roll
 Viking Palatable Cod Liver Oil.
- Swan-Myers Co.
 Ephedrine Hydrochloride—Swan-Myers
 Capsules Ephedrine Hydrochloride — Swan-Myers, 0.0324 Gm. ($\frac{1}{2}$ grain).
- United States Standard Product Co.
 Rabies Vaccine—U. S. S. P. (Semple Method).

NEW AND NON-OFFICIAL REMEDIES

Culture *Bacillus Acidophilus*—United Laboratories.—A pure culture of *B. acidophilus* in bottles, each containing about 120 cc. It contains not less than six hundred millions of viable organisms (*B. acidophilus*) per cc. at the time of sale. For a discussion of the action and uses of bacillus acidophilus preparations, see New and Non-official Remedies, 1926, p. 211, "Lactic Acid-Producing Organisms and Preparations". United Laboratories, Inc., Pasadena, Calif. (Jour. A. M. A., April 9, 1927, p. 1150).

Abbott's Mineral Oil Emulsion.—A mixture composed of liquid petrolatum, 40 cc.; agar, tragacanth and gelatin, 2 Gm.; sugar and flavoring, 2 Gm., and water sufficient to make 100 cc. It has the action of liquid petrolatum. Abbott Laboratories, North Chicago, Ill.

Ephedrine Hydrochloride—Swan-Myers.—A brand of ephedrine Hydrochloride—N. N. R. For a discussion of the actions, uses and dosage of ephedrine hydrochloride, see The Journal, A. M. A., March 19, 1927, p. 925. The product is marketed in substance and as Capsules Ephedrine Hydrochloride—Swan-Myers, 0.0324 Gm. ($\frac{1}{2}$ grain). Swan-Myers Company, Indianapolis.

Book Announcements

A Text-Book of Medicine. By 130 American Authors. Edited by RUSSELL L. CECIL, M. D., Assistant Professor of Clinical Medicine, Cornell University, Medical School, New York. Octavo of 1,500 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$9.00 net.

The rapid growth of medical science during the past few years has made it almost impossible for a single individual to master the entire field. In internal medicine, as in other branches of human knowledge the age of specialism has arrived, and some of our ablest practitioners devote themselves in a great measure to one disease. In order that physicians and students of medicine might have been the benefit of an authoritative and up-to-date treatise on every medical subject, Dr. Russell L. Cecil has prepared his new text-book by bringing together in one volume the best thought of 130 of the leading teacher-internists of the country.

Some of the outstanding contributions are: Tuberculosis by Dr. Allen Krouse, Johns Hopkins, on the purely scientific side, while Brown and Packard, of Saranac, Soper, of Yale and Webb, of Colorado Springs write on the more practical phases of the "great white plague"—in a total of 78 pages. Dr. Cecil's monograph on pneumonia is a complete summary-record of his extensive study and treatment of this important disease, in 28 pages. Lewellys F. Barker, encapsitis lethargica; C. C. Bass, malaria; Henry Christian, nephritis—with such other names as Wm. Engelbach, Nellis B. Foster, Alexander Lambert, Dean Lewis, W. T. Longcope, George R. Minot, H. Noguchi, Martin E. Rehfuess, Milton J. Rosenau, Fritz Talbot and Douglas VanderHoof—is sufficient assurance of the ability of the contributors.

The arrangement of this book is not unlike that of any other text-book on practice. The unique feature consists in having an author of special ability discuss that disease or group of diseases with which he is most familiar. The book is destined to meet immediate favor as the profession has been surfeited with voluminous systems that are usually more ornamental than useful.

This book has but few illustrations, and is unfortunately large—so is the field of knowledge it covers—but in printing and binding it is all that could be desired and for a remarkable thing the price is reasonable. In the opinion of the reviewer it is one of the best books of this decade.

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No. 2

Editorial

Endocarditis.

It is now nearly one hundred years (1834) since the term "endocarditis" was first employed. For an half century before this, however, clinicians recognized that, in attacks of rheumatism, the heart suffered certain damage but the actual nature thereof was not even approximately understood until Bouillaud (1834) defined this heart condition to be endocarditis, as opposed to pericarditis, and explained that endocarditis was an inflammation of the internal membrane of the heart and especially of the valves over which these membranes extend (Vaquez). From that time until the present, classifications of types of endocarditis have been under discussion. Even yet, the last word has not been written on this subject. However, to those, who follow this literature, it is becoming apparent that a more general agreement is being arrived at, although at a recent meeting of a national medical organization there were disclosed evidences, in the discussion, of a lack of full agreement as to incidence, diagnosis and prognosis of sub-acute bacterial endocarditis. For my own purposes, I shall follow Bierring¹ in a recent paper, with some modification in his definitions and classifications of endocarditis:

I. Rheumatic endocarditis, or acute verrucous endocarditis, accompanies or complicates an acute or subacute rheumatism. In this form of endocarditis the blood stream is bacteria free; although in a recent paper, Small

(A. J. M. Sci. 73, 101, Jan. 27) suggests the possibility of specific bacterium obtained from the blood. The endocardium is the site of vegetations, whatever the causative micro-organism of acute articular rheumatism may be.

II. Acute ulcerative, or malignant endocarditis, is a form that results from or is a part of an acute pyemia or septicemia. It runs a fatal course of from a few days to a few weeks. It is caused by an organism of an highly virulent nature.

III. Subacute bacterial endocarditis, or subacute ulcerative endocarditis, is a form of slow onset. It extends its course over a considerable period of time, and it is characterized by the pre-existence of a chronic heart lesion (usually a rheumatic lesion). It manifests phenomena of an embolic nature. The blood, on culture, shows the presence of a non-hemolytic streptococcus (*S. Viridans*) of a low virulence. The course of this type of endocarditis is toward fatality, although there is some doubt that it is invariably fatal.

IV. Chronic endocarditis is a terminal feature of a chronic heart malady. There are sclerotic changes in the endocardium, especially around the aortic opening, usually associated with arteriosclerosis, chronic nephritis, obesity, alcoholism and syphilis. This form is not primarily or essentially of bacterial origin.

So much for general classifications and definitions: now let us consider in detail the various forms.

Simple, acute endocarditis, with synonymous terms descriptive of its etiology and pathology, such as simple vegetative endocarditis, endocarditis verrucosa, thrombo-endocarditis superficialis, rheumatic endocarditis, is an inflammation of the valvular lining, usually of the left heart, following a preliminary infection, such as tonsillitis, rheumatic arthritis, chorea, scarlet fever, measles, gonorrhea and pneumonia. This inflammation assumes the pathologic formation of numerous minute grayish, white vegetations or verrucoses, located along the brim or edge of the valves, sometimes on the chordae tendineae or mural surface. These vegetative formations are made up of thrombotic masses of blood platelets, white and red cells, and fibrin.

Acute, malignant (septic), ulcerative endo-

(1) Bierring: J. A. M. A., Vol. 87, No. 7, pg. 464.

carditis is a progression of pathology found in the simple acute type. The thrombi are larger and ultimately undergo disintegration and ulceration. These ulcers occur on the valve and some times on the mural surface. In the circulating blood of this type, by blood culturing, there have been recovered, streptococci, pneumococci, staphylococci and gonococci. In post-mortem examinations the same organisms have been gotten from smears taken from these ulcerations. In this malignant form of endocarditis there is observed clinically exfoliative phenomena of the disease. During the rapid course of this type there occur signs of septic emboli which cause infarction of the peripheral blood vessels in kidneys, spleen, heart and brain. The mitral valve is the favorite site of the primary lesions although progressive involvement may take place over the entire left ventricular endocardium. By some, it is thought that aortic endocarditis of this type alone does occur. Syphilitic pathology of the heart, having been shown to occur more particularly at the aortic opening, involving aortic valve and ascending aorta, renders the statement of the older clinician as to frequent occurrence of simple or ulcerative endocarditis without luetic infection at aorta open to some question. The right heart is rarely involved in infective endocarditis although sometimes it does occur, possibly oftener than now thought.

Diagnostic signs of these forms of endocarditis should be looked for during the active, or following immediately the subsidence of rheumatic fever, tonsillitis, scarlet fever, pneumonia and septic fever of all sorts. The simplest form may never show gross heart signs; often careful and discriminating physical examination is needed in order to elicit the initial adventitious signs; in the rheumatic attacks the heart may be overlooked (because severe arthritic pains overshadow signs of heart involvement). Rapid systoles, irregular systoles, a septic course of fever, without new joint involvement, during a course of rheumatic fever, are harbingers of endocarditis. A septic course temperature, associated with regurgitant murmurs and bruit may appear later. With the ulcerative endocarditis, one may expect, too, embolic and other aggravated heart signs, involving valvular and muscular structures of the heart. Sudden death from embolic infarcts may follow a rapid and moderately rapid septic sickness,

displaying rigors, fever, anemia, emaciation, cardiac distress, dyspnea and spectacular symptoms showing themselves in the brain, spleen, eyes, kidneys, liver, joints, blood vessels and blood system. With such a sky-rocketing symptomatology, malignant ulcerative endocarditis culminates its terminal stage.

Chronic endocarditis may be mentioned at this point, if one understands that, in using the term endocarditis, one is not dealing with bacterial inflammation *per se*, if at all, but with a sclerotic thickening of valve-endocardium in the more or less aged heart. These endocardial degenerative pathologic stigmata accompany or follow the other marks of advancing age. It is found in the chronic alcoholic, the chronic "over eater", the hyperplastic syphilitic, the gouty (whatever that means), the patients with chronic focal infections who have acquired nephritic disease, and in the arteriosclerotic. In such patients the heart valves have become thickened, nodular and sclerotic. This pathologic formation at the aortic ring and on the aortic valve imparts a peculiarly metallic and high pitched note to the aortic element of the second sound, or it produces a murmur preceding or in connection with it or supplanting it. The mitral structures may be also caught up in this sclerosis of the left endocardium. At the mitral area also one may elicit presystolic obstruction or regurgitation murmurs, associated with cardiac muscular hypertrophy which is compensating to meet the physical malformations of the valve disease.

SUBACUTE BACTERIAL ENDOCARDITIS

This is distinctly an entity in endocarditis. It has certain clear cut individualities. Certain ear-marks are quite essential to know in order to understand it and certain in order to unearth it sometimes when hidden by an obscure initial symptomatology. It is by the following signs that this type is recognized and diagnosed:

First, in subacute bacterial endocarditis, there pre-exists valvular heart lesions (or pathology): there already has existed chronically injured valvular endocardium. This valvular lesion may or may not have been clinically known. Besides, subacute bacterial endocarditis is a disease of adult life; and the specific bacterium usually engrafts itself upon the left side of the heart: mitral valve

far more often than aortic valve structures; only a few cases of right side infection have been noted. There is usually an undetermined period of years between the primary rheumatic endocarditis with its apparent healing, and the subsequent appearance of subacute bacterial endocarditis of which we now are speaking. This "return engagement" is brought about mainly by the inoculation of two organisms; one of the streptococcus group, streptococcus viridans, a non-hemolytic streptococcus covering ninety-five per cent of these infections; and, the other of bacillus influenza group producing about five per cent of the remaining occurrences. This type of endocarditis is of low virulence and displays evidence of an embolic but not of pyogenic nature. But the deadly progress of the malady in no manner is forestalled by the peculiarity of these phenomena, so characteristic of acute malignant endocarditis, except in the saving quality of its slowness. Subacute bacterial endocarditis cases show usually the occurrence in the blood stream of non-hemolytic strain of the streptococcus but, as Gow says, the positive finding of this strain of streptococcus is of great diagnostic importance, while a negative, conversely, is of little importance.

News Notes

Medical College of Virginia Finals.

Commencement exercises of the Medical College of Virginia got under way on Saturday evening, May the 28th, with "stunt" night exercises, which were held in the auditorium of John Marshall High School. The following night, Rev. Charles L. King, D. D., pastor of Grace Covenant Presbyterian Church, delivered the baccalaureate sermon to the graduates. The alumni celebration was held at Commonwealth Club on Monday evening. The annual meeting of the alumni association was held on the following morning with the usual alumni luncheon afterwards. The ball game of alumni and faculty versus students was played that afternoon, and closing exercises at the City Auditorium on that evening were followed by the usual dance and reception at Commonwealth Club. Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service and an alumnus of the former University College of Medicine, Richmond, was the orator at the closing exercises.

Following the awarding of diplomas, the honorary degree of Doctor of Science was conferred upon Dr. Cumming by the College.

This year, there were eighty-five graduates in medicine. These with hospital appointments are as follows:

Memorial Hospital, Richmond—Drs. Hendrick A. Bracey, Bracey; William T. H. Brantley, Roanoke Rapids, N. C.; G. Norfleet Carter, Boydton; Herman S. Fletcher, Richmond; Charles R. Hoskins, Jr., Newport News; E. Claude Jamison, Boone Mill; Jeremiah Robert Johnson, Winston-Salem, N. C.; Orvin C. Jones, Richmond; James W. Keever, Hickory, N. C.; Blake W. Meador, Richmond; Edmund E. Robinson, Concord, N. C.; Malcolm S. Stinnett, Buchanan; Judson T. Vaughan, Ashland; John C. White, Bedford.

Johnston-Willis Hospital — Drs. John R. Hamilton, Clarksburg, W. Va.; W. Cary Henderson, New Canton; Alpheus H. Wood, Emporia.

Retreat for the Sick, Richmond—Drs. William L. Ball and Julian E. Trainum, of Richmond.

St. Elizabeth's Hospital, Richmond — Dr. Paul E. Prillaman, Callaway.

St. Luke's Hospital, Richmond—Drs. Edward Lee Alexander, Ellerson; Walter O. House, Norfolk; A. A. Milburn, Hinton, W. Va.

Stuart Circle Hospital, Richmond — Drs. Charles L. Newland, Jackson, Ky.; Edward N. Pleasants, Richmond; Felix B. Welton, Moorefield, W. Va.

Tucker Sanatorium, Richmond—Dr. J. Warren Hundley, Jr., Richmond.

Grace Hospital, Richmond—Dr. Irwin Rifkin, Richmond, and Mr. W. F. Fitzhugh, undergraduate.

Sheltering Arms Hospital, Richmond — Dr. Rufus C. Alley, Bristol, and Mr. W. R. Gladding and Mr. A. P. Hudgins, undergraduates.

Children's Memorial Clinic, Richmond—Mr. N. C. Patterson, undergraduate.

City Home Hospital, Richmond—Messrs. M. M. Fields, W. C. Jackson and D. F. Love, undergraduates.

City Jail Hospital, Richmond — Mr. L. H. Bracey, undergraduate.

Convalescent Hospital, Richmond — Mr. George Hess, undergraduate.

Home for Incurables, Richmond—Mr. R. W. Southerland, undergraduate.

- Hygeia Hospital, Richmond*—Messrs. A. L. Baker and C. L. Brother, undergraduates.
- Penitentiary Hospital, Richmond*—Mr. C. G. Bennett, undergraduate.
- Soldiers' Home Hospital, Richmond*—Mr. C. L. Neale, undergraduate.
- George Ben Johnston Memorial Hospital, Abingdon, Va.*—Dr. Arthur D. Hutton, Glade Spring.
- St. Agnes Hospital, Baltimore, Md.* — Drs. Thomas S. Bowyer, Emory; Eliot W. Johnson, Kipling, N. C.
- Johns Hopkins Hospital, Baltimore, Md.*—Dr. Harvey C. Brownley, Norfolk.
- St. Joseph's Hospital, Baltimore, Md.*—Dr. Joseph V. Castagna, Baltimore, Md.
- West Baltimore General Hospital, Baltimore, Md.*—Dr. S. Charles Feldman, Baltimore, Md.
- Mercy Hospital, Baltimore, Md.*—Dr. Victor K. Young, Bloxom.
- Boston Floating Hospital, Boston, Mass.*—Dr. Frederick U. Metcalf, Roanoke.
- Long Island Hospital, Boston, Mass.*—Dr. Thomas W. McBane, Greensboro, N. C.
- Unity Hospital, Brooklyn, N. Y.*—Dr. Martin H. Greenfield, Brooklyn, N. Y.
- Charleston General Hospital, Charleston, W. Va.*—Drs. A. R. Lutz, Orkney Springs; Thomas N. Spessard, Richmond.
- Mountain State Hospital, Charleston, W. Va.*—Dr. Roy R. Summers, Clendenin, W. Va.
- St. Elizabeth Hospital, Covington, Ky.*—Drs. Leo E. Hayes and Leo Jacobs, Richmond.
- Fitzsimmons General Hospital, Denver, Colorado*—Dr. Seth Gayle, Jr., Richmond.
- Hazleton State Hospital, Hazleton, Pa.*—Drs. Robert L. Eastman, Frederickstown, Ohio; Earl J. Haden, East Leake.
- Chesapeake & Ohio Hospital, Huntington, W. Va.*—Drs. Raymond E. Bailey, Hamlin, W. Va.; Dana L. Cavendish, Rainelle, W. Va.; Raymond H. Curry, Hamlin, W. Va.; Carl C. Jackson, Big Chimney, W. Va.
- Guthrie Hospital, Huntington, W. Va.*—Dr. Byford H. Denman, Lufkin, Texas.
- St. Mary's Hospital, Huntington, W. Va.*—Dr. Harry E. Beard, Huntington, W. Va.
- People's Hospital, New York, N. Y.* — Dr. Harry A. Dick, New York, N. Y.
- Columbus Hospital, New York, N. Y.*—Dr. Vincent J. Felitti, New York, N. Y.
- Metropolitan Hospital, New York, N. Y.*—Dr. Emanuel Roth, Brooklyn, N. Y.
- New York Polyclinic Hospital, New York, N. Y.*—Dr. Stanley F. Stockhammer, New York, N. Y.
- Fifth Avenue Hospital, New York, N. Y.*—Dr. Wilbur S. Stakes, Richmond.
- St. Vincent's Hospital, Norfolk, Va.* — Drs. Valentine Caso, New York, N. Y.; Charles B. Martin, Concord Depot; Willard P. Smith, Newport News.
- Petersburg Hospital, Petersburg, Va.*—Dr. Clabe W. Lynn, Raleigh, N. C.
- Alleghany General Hospital, Pittsburgh, Pa.*—Dr. William L. Madera, Morgantown, W. Va.
- Lewis-Gale Hospital, Roanoke, Va.* — Drs. Oliver L. Jones, Powcan; Maury C. Newton, Bluefield.
- Letterman General Hospital, San Francisco, Cal.*—Dr. L. Holmes Ginn, Jr., Berryville.
- Municipal Hospital, San Juan, Porto Rico*—Drs. Juan N. Colon, Cidra, P. R.; Jose C. Collazo, Rio Piedras, P. R.
- Lakeview Hospital, Suffolk, Va.*—Dr. John R. Ellison, Jr., Suffolk.
- Holy Name Hospital, Taeneck, N. J.*—Dr. Sidney F. Johnston, East Radford.
- Tampa Municipal Hospital, Tampa, Fla.*—Dr. Louis S. Leo, Richmond.
- Walter Reed Hospital, Washington, D. C.*—Dr. James T. Tucker, Huntington, W. Va.
- James Walker Memorial Hospital, Wilmington, N. C.*—Dr. William S. Jones, Nashville, N. C.
- City Memorial Hospital, Winston-Salem, N. C.*—Dr. Lester L. Anderson, Advance, N. C.
- N. C. State Baptist Hospital, Winston-Salem, N. C.*—Dr. Joseph T. McCastor, Richmond.
- U. S. Government Marine Hospital* — Dr. Palmer A. Shelburne, Richmond.

In addition to the above list, the following were awarded their diplomas in medicine, but no hospital appointments have been announced as we go to press:

- Dr. Henry C. Davis, Honaker, Va.
 Dr. Arnold J. Given, Big Chimney, W. Va.
 Dr. Carman I. Martin, Maysville, W. Va.
 Dr. Peter Pagano, Ridgewood, N. J.
 Dr. John W. Parker, Jr., Emporia, Va.
 Dr. Joseph T. Peters, Princeton, W. Va.
 Dr. Percy P. Pharr, Gap Mills, W. Va.
 Dr. William H. Powell, Jr., Fayetteville, N. C.
 Dr. Frank F. Sowers, Landgraff, W. Va.

Committees in Charge of Petersburg Meeting, Medical Society of Virginia.

Petersburg doctors have begun working to make our fifty-eighth annual meeting to be held in that city in October a success. Needless to say, it is up to each member of the Society to do his or her part by at least attending, if possible. Put the dates in your note book now. They are October 18, 19 and 20, 1927.

Dr. J. Bolling Jones has been appointed general chairman of the local committee of arrangements, and the following committees will have charge of various aspects of the work.

RECEPTION AND AUTOMOBILES: Dr. L. S. Early, *Chairman*, Dr. D. C. Mayes, Dr. W. B. McIlwaine, Dr. W. A. Reese, Dr. E. W. Perkins, Dr. W. M. Bowman.

BADGES, PRINTING AND PUBLICITY: Dr. Wright Clarkson, *Chairman*, Dr. W. C. Moomaw, Dr. H. M. Snead, Dr. R. E. Wilkinson, Dr. D. D. Willcox, Dr. J. E. Smith, Dr. P. L. Hill.

GOLF: Dr. W. P. Hoy, *Chairman*, Dr. W. B. McIlwaine, Dr. Herbert C. Jones, Dr. Meade C. Edmunds, Dr. J. M. Harwood.

FINANCE: Dr. William F. Drewry, *Chairman*, Dr. R. H. Manson, Dr. Herbert C. Jones, Dr. C. S. Dodd, Dr. R. A. Martin, Dr. J. M. Williams

ENTERTAINMENT: Dr. Mason Romaine, *Chairman*, Dr. E. L. McGill, Dr. H. C. Henry, Dr. J. Bolling Jones, Dr. W. I. Prichard, Dr. Ruth S. Mason.

COMMERCIAL AND SCIENTIFIC EXHIBITS: Dr. W. C. Powell, *Chairman*, Dr. George S. Fultz, Dr. C. T. Jones, Dr. W. S. Briggs, Dr. E. W. Young, Dr. E. J. Nixon, Dr. James H. Hargrave.

HOTELS AND MEETING HALL: Dr. E. L. McGill, *Chairman*, Dr. George H. Reese, Dr. J. D. Osborne, Dr. R. T. Hawks, Dr. Mason Romaine, Dr. J. R. Beckwith.

The ladies have not been forgotten and a committee is to be named shortly to look after their pleasure and arrange for meetings of the Woman's Auxiliary.

American Medical Association.

Any one attending the Washington meeting of the American Medical Association, last month, must have been impressed with the idea that there is something in medical organization for such a vast crowd to have been

attracted to the sessions from all parts of the States and a few foreign countries. Truly, it was an inspiration to see so many on one purpose bent. There was a registered attendance of 6,273. Three hundred and ninety-four of these were from Virginia. There was something of interest for everyone and spare minutes were filled in with sight seeing in the Nation's capital. Many side trips had been arranged for the visitors and the annual reception for the president and president-elect of the Association at the Mayflower Hotel was a brilliant affair. Numerous alumni and fraternity gatherings were held. Virginia was represented in the House of Delegates by Drs. Southgate Leigh, J. W. Preston and E. C. S. Taliaferro.

The exercises held in the amphitheatre at Arlington National Cemetery, in memory of members of the Association who gave their lives in the World War, were most impressive and will long be remembered by those who were fortunate enough to attend. On this occasion it was stated that the first American soldier to be killed by the enemy in the World War was a physician. The exercises were in memory of the five hundred medical officers who died from all causes during the World War, and were concluded with the placing of a wreath on the tomb of the unknown soldier by Dr. Wendell C. Phillips, at that time president of the Association.

The House of Delegates selected Minneapolis, Minn., for the next annual session of the Association and elected Dr. William S. Thayer, Baltimore, Md.; as president-elect, and Dr. Charles A. Elliott, Chicago, Ill., as president. Dr. Jabez N. Jackson, Kansas City, Mo., succeeded to the presidency, and other officers were re-elected.

The Augusta County Medical Association

Held its tri-monthly meeting in Staunton, May 4th, with a good attendance. Clinical cases were reported by several of the members, following which several papers were read. An interesting feature of this meeting was the donation of \$100.00 for the relief of the flood sufferers in the Mississippi Valley.

Dr. H. G. Middlekauff, Weyers Cave, is president of this society, and Dr. W. F. Hartman, Staunton, R. D. 7, secretary.

Russell County Medical Society

Recently re-organized after being inactive for sometime, and elected Dr. T. T. McNeer,

Dante, president, and Dr. S. C. Couch, Cleveland, secretary.

The Nelson County Medical Society

Held its regular meeting on May 31st, and elected Dr. J. F. Thaxton, Tye River, as president for the ensuing year, and Dr. W. D. Meeks, Massies Mill, secretary-treasurer. Dr. B. F. Randolph, Arrington, was named delegate to the Petersburg meeting of the State Society, with Dr. E. C. Kidd, of Lovington, as alternate.

The Walter Reed Medical Society

Held its annual meeting at Yorktown, Va., May 26 and 27, under the presidency of Dr. J. W. C. Jones, of Newport News. The meeting was well attended and interesting papers were read by a number of members and invited guests. The Society voted a donation of \$100.00 to the Walter Reed Memorial Fund. Dr. W. W. Kerns, of Bloxom, was elected president and the following were elected vice-presidents: Dr. C. B. Courtney, Newport News; Dr. H. G. Longaker, Newport News; Dr. R. A. Davis, Newport News; Dr. M. W. Crafford, Lee Hall; and Dr. L. O. Powell, Seaford. Dr. L. E. Stubbs and Dr. J. E. Marable, both of Newport News, were re-elected secretary and treasurer, respectively. The meetings are held at Yorktown.

The Medical Association of the Valley of Virginia

Held its semi-annual meeting in Clifton Forge, May 26th, the president, Dr. A. F. Robertson, Jr., of Staunton, presiding. There was an attendance of about fifty and an interesting program had been arranged. Dr. A. A. Berg, of New York City, was an invited guest. The Association voted to hold its next meeting in Winchester on the last Tuesday in September. Dr. H. G. Middlekauff, of Weyers Cave, is secretary.

Dr. J. G. Bentley

Announces his removal from Norton to Blackwood, Va.

Dr. S. B. Nickels

Has returned to his home at Clinchport, Va., after taking special post-graduate work in medicine at the Washington University Medical School and St. Louis clinics, St. Louis, Mo.

Dr. and Mrs. Fauntleroy Flinn,

Of Decatur, Ill., but who for a time made their home in Roanoke, Va., were recently called to his old home at Alberta, Va., on account of the illness of his mother.

The Virginia State Dental Association

Held its annual meeting at Cavalier Hotel, Virginia Beach, early in May. It was decided to hold the 1928 session in Roanoke. Dr. W. G. Delp, of Rural Retreat, succeeded to the presidency, Dr. R. C. Walden, Richmond, was made president-elect, and Dr. A. M. Wash, Richmond, was re-elected secretary-treasurer.

Dr. Thomas Duckett Jones Awarded Fellowship.

Dr. Thoms Duckett Jones, son of Dr. and Mrs. J. Bolling Jones, of Petersburg, Va., and now instructor in medicine at the University of Virginia, Medical Department, has been awarded a fellowship for foreign study by the National Research Council. He will leave September 1st for London, where he will spend a year studying diseases of the heart with Sir Thomas Lewis.

The Graduate Nurses' Association of Virginia,

At its annual meeting held at Norfolk in May, elected the following officers: President, Miss Martha V. Baylor, Roanoke; vice-presidents, Miss Ruth Epperson, Norfolk; Miss Elizabeth Ritz, Richmond, and Miss Carrie M. Copenhaver, Bristol; secretary, Miss Lily W. Walker, Danville; and treasurer, Miss Florence A. Bishop, Portsmouth. Miss L. L. Odom, Norfolk; Miss Josephine McLeod, University, and Miss Agnes D. Randolph, Richmond, were re-elected directors.

Dr. Henry A. Christian,

Physician-in-chief to the Peter Bent Brigham Hospital, Boston, Mass., a native of Lynchburg, Va., addressed the graduating class of the Virginia Baptist Hospital, in that city, at their closing exercises, the last of May.

Dr. and Mrs. H. Inberg,

Of Danville, Va., sailed the latter part of May from New York, for a tour of Europe and will be away until August.

Dr. George P. McCoy,

Of Covington, Va., has moved to Hopewell, Va., where he will engage in general practice.

The Association of Southern Railway Surgeons,

At its recent meeting in Mobile, Ala., selected Norfolk, Va., as its next meeting place and elected the following officers: President, Dr. Arthur T. Pritchard, Asheville, N. C.; vice-presidents, Drs. Richard J. Payne, St. Louis, Mo., M. B. Carr, Tazewell, Tenn., and H. S. Black, Spartanburg, S. C. Miss Edith A. Foltz Washington, D. C., was re-elected secretary-treasurer.

Philadelphia College of Pharmacy and Science.

Dr. Wilmer Krusen, new president of the College, was given a reception, on May 27th, at the Bellevue-Stratford Hotel, Philadelphia, by the Board of Trustees of the College.

Dr. Charles O'H. Laughinghouse,

Raleigh, N. C., has been elected secretary of the North Carolina State Board of Health and State Health Officer for a period of six years.

The Virginia Society of Oto-Laryngology and Ophthalmology

Held its annual meeting in Charlottesville, the last of April, under the presidency of Dr. Clifton M. Miller, of Richmond. At this meeting it was decided that a prize would be awarded each year for the best paper to be presented by a member of the society. The following officers were elected for the coming year: President, Dr. C. S. Dodd, Petersburg; vice-president, Dr. Frank Hanger, Staunton; secretary-treasurer, Dr. Fletcher D. Woodward (re-elected), University. The 1928 meeting will be held in Newport News.

Dr. Taswell P. Haney, Jr.,

Of Burnsville, Miss., who graduated in medicine at the University of Virginia, in 1926, has been elected full-time health officer of Tishomingo County, Mississippi.

The Medical Society of the State of North Carolina,

At its annual meeting at Durham, in April, elected Dr. John T. Burrus, of High Point, president, and re-elected Dr. L. B. McBrayer, Southern Pines, secretary-treasurer. Drs. G. H. Macon, of Warrenton, Robert F. Leinbach, of Charlotte, and William R. Griffin, of Asheville, were elected vice-presidents.

Dr. Charles W. Putney,

Formerly of Staunton, Va., has just completed a post-graduate course in surgery at the University of Pennsylvania, and will spend the summer visiting surgical clinics in Baltimore, Cleveland, Chicago, and Rochester, Minn.

Dr. F. L. Thurman,

Of Buena Vista, Va., sailed from New York on May the 25th, to attend the annual meeting of the Rotary International which will be held in Belgium.

The American College of Radiology

Held a most interesting meeting in Washington, D. C., during the meeting of the American Medical Association. This organization is interested in work done both with X-ray and radium and has an active membership limited to one hundred in the United States and Canada. Drs. A. L. Gray and D. D. Talley, of Richmond, are the only Virginia members. An outstanding event in this meeting was the conferring of honorary fellowship upon Dr. Wm. Duane, Professor of Physics at Harvard University, and upon Dr. William D. Coolidge, renowned American chemist, of the Research Department of the General Electric Company. These are the first Americans to be so honored by the College. Dr. Coolidge was also presented by the College with a medal in recognition of his outstanding contributions to the art and science of roentgenology.

Dr. M. J. Hubeny, of Chicago, succeeded to the presidency, and Dr. A. L. Gray, of Richmond, Va., was made president-elect. Other officers elected at this meeting are: Vice-president, Dr. Howard E. Ruggles, of San Francisco; secretary, Dr. Albert Soiland, Los Angeles; treasurer, Dr. Benj. H. Orndoff, Chicago; historian, Dr. I. S. Trostler, Chicago; and Dr. L. J. Menville, of New Orleans, and Dr. T. A. Groover, of Washington, D. C., were elected members of the board of chancellors.

Dr. Guy Hinsdale,

Of Hot Springs, Va., left the first of June for his summer home at Kennebunkport, Me., and will remain there until the middle of September.

Dr. Sheppard K. Ames,

Of the class of '25, University of Virginia, Medical Department, upon completion of an

internship at St. Joseph's Hospital, Baltimore, Md., located at Cape Charles, Va., where he is now engaged in the practice of medicine.

Professor of Pediatrics at Johns Hopkins.

Dr. E. A. Park, after six years at Yale University, will return to Johns Hopkins, Baltimore, in September as professor of pediatrics and pediatrician-in-chief of Johns Hopkins Hospital, succeeding Dr. John Howland who died last June.

Dr. Joseph Caplan,

University of Virginia, Medical Department, class of '25, since completing an internship at Hebrew Hospital, Baltimore, Md., has been at the Presbyterian Eye, Ear and Throat Charity Hospital, in that city.

New Hospital to be Built at Saltville, Va.

Plans have recently been completed for building a modernly equipped 45-bed hospital at Saltville, Va.

The Tennessee State Medical Association,

At its annual meeting, recently held at Chattanooga, elected Dr. William B. Malone, of Memphis, president, and Dr. Harrison H. Shoulders, of Nashville, was elected full-time secretary and editor of the state medical journal.

Dr. Fred J. Wampler,

Recently returned from China, is now county health officer for Accomac and Northampton Counties, with headquarters at Accomac, Va. He succeeded Dr. Robert P. Cooke who is now in charge of a similar work in Lexington and Rockbridge County, Virginia.

Dr. Welch Awarded Medal.

Dr. William H. Welch, professor of history of medicine at Johns Hopkins Medical School, was awarded the 1927 medal for scientific research in medicine, by the Association of American Physicians at its recent meeting in Atlantic City, N. J.

Dr. Samuel Newman

Has returned to his home in Danville, Va., after spending sometime in New York, where he took special courses in his specialty at the the Neurological Institute and the Vanderbilt Clinic.

Dr. A. M. Byrd.

Formerly with Dr. W. R. Williams, at Richlands, Va., and who recently has been

with the U. S. P. H. S., Hot Springs National Park, Arkansas, is now associated with Dr. H. R. Connell, at Northfork, West Virginia. He is limiting his work to venerology and proctology.

Dr. Charles L. Minor,

Asheville, N. C., has returned home after spending several months visiting European clinics.

The Hospital Clinical Congress of North America

Has announced its annual meeting for June 20th to 24th in Milwaukee, Wis., under the auspices of the College of Hospital Administration of Marquette University. This meeting promises much of interest to all connected with hospital work. Communications concerning the meeting should be addressed to College of Hospital Administration, 124 Thirteenth Street, Milwaukee, Wisconsin.

Dr. E. P. Cox,

Norton, Va., was a visitor in Richmond the early part of May.

Two Richmond Doctors Honored.

Dr. Frank Johns and Dr. Manfred Call, both of Richmond, Va., were elected associate members of the American Association for Thoracic Surgery at its recent meeting in New York.

Dr. D. Hunter Marrow

Has returned to his home at Union Level, Va., for the summer months, after spending the winter at Daytona Beach, Fla.

Dr. R. A. Vonderlehr,

Formerly of Richmond, Va., but now with the U. S. Public Health Service, has just been ordered to Washington, D. C., for training in neuropsychiatry at St. Elizabeth's Hospital, that city.

Dr. Emory Hill,

Richmond, recently addressed the Norfolk County Medical Society, his subject being "Sinus Disease in Relation to Ocular Infection."

Dr. R. W. Browne,

Formerly with the Public Health Service at Norfolk, Virginia, and who has lately been in charge of the U. S. Veterans' Hospital at St. Paul, Minnesota, has just been transferred to Ft. Bayard, New Mexico, and will be Medical Officer in Charge of the U. S. Veterans' Hospital at that place.

The West Virginia State Medical Association

Will hold its sixtieth annual meeting at White Sulphur Springs, June 21-23, inclusive, under the presidency of Dr. Chester R. Ogden, of Clarksburg. An unusually attractive program has been arranged and a large attendance is expected. Mr. Joe W. Savage recently succeeded Mr. Sterrett O. Neale, resigned, as secretary.

Dr. Stephen H. Watts

Has resigned as professor of surgery and gynecology at the University of Virginia, his resignation to take effect September 1st.

Dr. Edith J. Lacy,

Assistant physician at the Eastern State Hospital, Williamsburg, Va., resigned her position at the hospital, effective June 1, as she expects to go to India for medical service.

The Association of American Physicians,

At its recent meeting, elected Dr. A. S. Warthin, of Ann Arbor, Mich., president for the succeeding year, and Dr. James H. Means, of Boston, Mass., secretary. The next meeting is to be held in Washington, D. C., in May, 1928.

Aloe's Removal.

The well known surgical supply house of A. S. Aloe Company in St. Louis has been crowded out of their contracted quarters at 513 Olive Street, (the optical store remains there) and are now located in the new Aloe Surgical Building at 1819-23 Olive Street—only three blocks from the Union Station. The removal was necessitated by lack of downtown parking facilities and the growth of their surgical business which required larger and better quarters. Visiting physicians should take note of the new location near the railway center.

This Company will be glad to send the Aloe Catalog to any of our readers upon request.

Dr. Harry Goldstein,

Of the class of '26, Medical College of Virginia, has located in Roanoke, Va., for the practice of medicine.

Dr. Israel Brown Honored.

Announcement has been made of the appointment of Dr. Israel Brown of Norfolk, Va., as a member of the national distinguished guest committee of the American Le-

gion. He is the third Virginian to hold a post in the national legion organization.

Sight-Saving Classes.

Several universities are this year offering courses for the training of teachers for sight-saving classes during the summer session. The National Committee for the Prevention of Blindness, with headquarters at 370 Seventh Avenue, New York City, announces that there are now 265 sight-saving classes in the United States while there is need for approximately 5,000 to provide a normal education for children with seriously defective vision without imposing an undue strain on the little remaining sight of such children.

The significance of these sight-saving classes to the public at large is the fact that it costs ten times as much to educate a blind child as it does a normally sighted child. The experience from such classes already in existence shows that it is now possible to educate in the public schools many children with seriously defective vision who, though not blind, formerly found their only opportunity for education in schools for the blind.

Dr. H. D. Ribble

Has returned to his home just outside of Blacksburg, Va., after spending the winter months at Mount Hope, W. Va.

Virginia Tuberculosis Association.

At a called meeting of the board of directors of the Association recently, Mr. Julien Gunn, of Henrico County, was elected president to fill the vacancy caused by Dr. R. A. Martin's having declined to serve. Dr. H. A. Latane, Alexandria, was elected to succeed Mr. Gunn as first vice-president.

Halycon Hospital to be Re-opened.

It is announced that Halycon Hospital, South Boston, Va., formerly owned and operated by Dr. H. S. Belt, has been leased by Drs. I. K. Briggs, George A. Stover, H. H. Hurt and G. E. Faulkner, of South Boston, and will be re-opened this month.

Dr. E. L. Caudill,

Narrows, Va., has been elected president of the Cavalier Hosiery Mills which is to be opened in that place.

Dr. V. W. Quillen,

Of Nickelsville, Va., who has been taking post-graduate work in New York City, has decided to finish the three months' course in the

medical seminar, while there, so will not return home until early in July instead of in June as he at first planned.

Interesting Booklet.

Johnson and Johnson, New Brunswick, N. J., one of our advertisers, has just published an exceedingly interesting and attractive booklet, entitled "When the Medical Profession of New York Paid Homage to 'The Autocrat of the Breakfast Table' April 12th, 1883." On this occasion, a public dinner was given to Dr. Holmes just after he resigned as a professor at Harvard. The booklet is profusely illustrated and attractively arranged. Johnson and Johnson are to be congratulated upon the creditable way in which they have honored Dr. Holmes.

Dr. Edgar W. Young,

Of Petersburg, Va., has resumed his practice in that city after being a patient at St. Luke's Hospital, Richmond, for a month.

Dr. Charles E. Dyer,

Recently of Pulaski, Va., has moved to Roderfield, W. Va., where he will be physician for several coal companies.

Wanted.

Spendid location open for physician in Southside Virginia town, population 4,500 to 5,000, with good surrounding territory. If interested, write to "G. D. C.," care this journal. (Adv.)

Wanted.

Spendid location open for colored physician in Southside Virginia town of 4,500 to 5,000 population, with good surrounding territory. If interested write to "X. Y. Z.," care this journal. (Adv.)

Obituary

Dr. Leslie C. Brock,

Smithfield, Va., a prominent physician of Tidewater Virginia, died at his home in that place on May 24th, following a stroke of paralysis which he suffered on the preceding day. Dr. Brock was a native of Isle of Wight County and fifty-four years of age. He was

graduated in medicine from the Medical College of Virginia in 1894 and shortly thereafter located in Smithfield. He had been mayor of Smithfield for the past twenty-two years and was active in the civic and professional affairs of his community. He was a member of the Medical Society of Virginia and also of Smithfield Lodge, No. 18, A. F. & A. M. His wife survives him.

Dr. Robert T. Glassell,

A prominent physician of Bowling Green, Va., died at his home in that place, June 4th, after an illness of a year. Dr. Glassell was born in Bowling Green seventy-three years ago and, after his academic education, studied medicine at the University of Maryland, from which he graduated in 1886. He had been a member of the Medical Society of Virginia since 1889. He is survived by three daughters and several sisters.

Dr. J. K. Simmons,

Nace, Va., Confederate veteran and a member of the Medical Society of Virginia, died at his home in Botetourt County, April 9, of heart disease. He was eighty-six years of age and graduated from the Medical College of Virginia in 1869.

Major Albert Gallatin Franklin,

Of the U. S. Army Medical Corps, formerly of Richmond, Va., died June 1st at Walter Reed Hospital, Washington, D. C., at the age of fifty-four years. He received his medical diploma from the former University College of Medicine, Richmond, Va., in 1897, and practiced in this city for several years before entering the U. S. Army. He is survived by his wife and two sons.

Dr. Charles Sterling White,

Of Winston-Salem, N. C., died April 18th of injuries received in an automobile accident. Dr. White was twenty-five years of age and graduated from the Medical College of Virginia two years ago, following which he accepted an internship at City Memorial Hospital in Winston-Salem.

Mrs. Fanny Berkeley Barham,

Wife of Dr. W. B. Barham, of Newsoms and Big Stone Gap, Va., died May 22nd, after an illness of several months. She is survived by her husband and two daughters, Mrs. J. A. Grizzard, of Drewyville, and Mrs. James M. Smith, of Big Stone Gap.

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SPEAKING OF NASAL SINUS OPERATIONS.*

By J. W. JERVEY, M. D., Greenville, S. C.

"Speaking of Nasal Sinus Operations" may sound rather Irvin Cobbish, but I can re-assure you that I am not going to give you my personal experiences as a patient. So far I have not been a victim of any of my rhinological brethren. I shall attempt to recount to you, in a general way, my observations covering these conditions as they have presented themselves to me in nearly thirty years' practice in a climate not very dissimilar from your own.

First of all, you note, of course, that I refer to "climate" in this connection. Why shouldn't I? Those of us who are engaged in this work in the more rigorous northern and western climates evidently see many more, and much more violent, cases of this sort than those with which we in the "Sunny South" come into contact. The same is true in mastoid infection—and, after all, this mastoid is virtually but another, though somewhat segregated, nasal accessory sinus.

To begin at the beginning (which is the proper place to begin even in such as discursive discussion as this promises to be): Why is sinus disease? And we shall, by mutual consent, throw out of consideration the so-called "catarrhal sinus", and confine ourselves to actual sinus infection.

In October, 1925, the American College of Surgeons held its annual meeting in Philadelphia. I was invited to open the discussion of Joseph C. Beck's paper on nasal sinus infections (I have forgotten the exact title of the paper). In the course of his remarks he stated that tonsil infections almost invariably followed sinus infections. In my discussion I mildly suggested that he may inadvertently have put the cart before the horse, for it has been my observation that in little less than one hundred per cent of the sinus cases I have seen in thirty years' practice there was either present, or *had been present*, a pre-existing tonsillar infection. (This is, of course,

exclusive of those antrum cases of frankly dental origin, and those which seem definitely to be sequelae of influenza—though most of these latter will be found to have existent or pre-existent tonsil infection).

Furthermore, my experience has taught me that it is rather likely to lead to a foolish feeling, if one tries to eradicate a sinus infection and leaves infected tonsils "as is". Think that over! Every time the unfortunate proprietor of infected tonsils coughs, or sneezes, or blows his nose, a hurricane of pus-saturated air breezes through his post-nasal and nasal channels. Why wouldn't the sinus outlets gather in their share of it? And, remembering your anatomy, which of the nasal sinuses are most likely to bear the brunt of this polluted air attack?

Most of this vicious current is gathered in by the overhanging posterior end of the middle turbinate and is swept directly across the hiatus semilunaris where are the mouths of the frontal, ethmoid and maxillary sinus orifices. The sphenoid orifice is on the posterior wall of the nasal chamber. The effect of the blast is rather to create a sphenoid vacuum and cleanse this sinus, without direct contact of the impregnated stream with the sphenoid orifice. But the others suffer from the contact in varying degree. The frontal has a long downward drainage trend, and is not often implicated. The ethmoid has a downward and forward drainage trend, but it is a much shorter route; while the maxillary antrum has its yawping, dangerously placed, orifice ready to take in any stranger that comes its way. These are anatomical facts. What are our pathological observations?

The antrum is by far the most frequently infected sinus. I believe we are all agreed on that point. Next, certainly in my observation, comes the ethmoid labyrinth. Then comes the frontal, and, finally, and seldom seen in our climate, the sphenoid. Exactly the order we might expect in consideration of the mechanical formation and forcible expulsion of infection from behind—that is, from the pharynx up to the posterior choana and forward.

I do not for a moment deny the influence of

*Read by invitation at the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology, in Charlottesville, Va., April 30, 1927.

the influenza infection in the causation of sinusitis, but even in these cases the mechanics of the situation are largely the same, and tonsil infections are almost invariably present. Nor do I deny the occasional (though, I believe, not as frequently as supposed) infection of the maxillary antrum from a diseased tooth root. And I am glad to pay tribute to my dentist friends who frequently send antrum cases to me, not because they are caused by infected teeth, but because the patients think they have dental trouble, and the dentist, finding no pathology within his own domain, recognizes the likelihood of antrum infection. I have one dentist friend who is particularly clever at this diagnosis.

Having thus briefly disposed of the relative frequency of incidence of sinus infection, allow me to try, equally as briefly, to dispose of their management by operative procedure—the *raison d'être* of this discussion.

Let me say, in passing, that certainly, at least in acute infections, conservative measures, such as shrinking of intranasal mucosa to provide for drainage, vacuum drainage and douching, and local medication, as well as general dehydration and drying up of secretions, should first be resorted to. Nor are certain dietary regulations and the particular importance of blood calcium content to be ignored; and these latter are of vital importance also in the chronic and operative cases.

Beginning, then, with the most frequent group of sinus infections requiring some form of operative interference, viz.: the maxillary antrum infections, I shall outline to you my method of attack by means which have given me the most satisfactory results. First, I puncture and irrigate through the naso-antral wall, below the inferior turbinate. The most scrupulous aseptic precautions are observed, because, even though you know you already have a present infection, there can be no excuse for adding fuel to the fire. The irrigation is done with saline solution, and when the cavity is washed clean, the syringe is again used to blow the residual solution out and the cavity is filled with 1-1,000 neutral acriflavine solution. I am aware that some accidents have been reported from the injection of air into the antrum, but I consider the procedure entirely safe, if proper care has been used in the original puncture.

I am also aware of the fact that our laboratory friends tell us that we must determine

first whether we have an infection from an acid-fast or Gram-positive or Gram-negative micro-organism, or some other variety, and be thereby guided in our choice of antiseptic. There may be something in this; I am willing to concede the point; but I have been so often misled by these friends that I make many mental reservations in accepting their dicta, and often prefer to let my conscience and my clinical sense be my guide.

When this means fails in a reasonable time to bring about improvement, I resect the naso-antral wall below and external to the inferior turbinate, making a large and permanent opening for drainage and ventilation. This can and should be done without sacrifice of any part of the inferior turbinate, and is invariably a successful procedure, except where there is polypoid degeneration (and sometimes even then) or other neoplastic growth. And this thought leads me to asseverate what you all doubtless already know, but bears emphasis, and that is that the presence of mucous polyps does not always mean that these growths have to be surgically dealt with. Free drainage and ventilation have made many a well-formed and robust polyp "iris out", as they say in moving picture parlance.

Where we encounter persistent neoplastic development in the antrum, then the Caldwell-Luc or the Denker operation is indicated. I prefer the latter. I may say also that, when I do it, I prefer to suture the buccal incision. Thus, briefly, we dispose of the infected antrum, the commonest of the nasal accessory sinus infections.

Next, let us consider infection of the ethmoid labyrinth. It is difficult, and I believe unnecessary, to draw a dividing line between anterior and posterior ethmoid. Knowing that we have disease in this area, my first idea is to try to drain it through its natural exits by means of vacuum douches. If I have reason to think the infection is limited to the anterior cells, and conservative measures are unsuccessful, then I open these cells under the middle turbinate without disturbing the latter. If the posterior cells are involved, I do not hesitate to sacrifice the whole of the middle turbinate by resection before entering the labyrinth. My method of opening these cells is from before backward, and every step strictly under the direct scrutiny of my eye. Nobody should enter my ethmoid by any other procedure, and I shall not enter the other fel-

low's save under the same safeguards. I have seen it done otherwise, by the sense of touch, and the assumed sense of a more or less divine intuition or orientation—but not for me. I may say that I approach the complete ethmoid exenteration with greater fear and respect than any other sinus operation (including the mastoid).

Next, and in the order of frequency, we come to the frontal sinus. When I know I have an infection of this cavity, I resort, as in the case of the ethmoid, first to vacuum douching. If this does not turn the trick, I resect the anterior third of the middle turbinate which is almost invariably hypertrophied or cystic, in the hope that this will relieve the drainage block. This failing, I break down the anterior ethmoid cells, which procedure, in almost all cases, gives direct entrance into the frontal. The passage may be enlarged with rasps if necessary. Then irrigation and medication follows, similar to that already described in the case of the maxillary antrum.

Just as in the case of the antrum, however, we may happen to be confronted with a cyst or a polyp or other neoplastic formation. In addition, we may have here, what is rare in the antrum, one or more dividing septa, perhaps with small communicating openings between divisions of the sinus. In these cases, of course, the radical operation must be undertaken. Yet I have very, very seldom found it to be necessary. When it must be done, I rather incline to the Lothrop operation, which, of course, is well known to you.

As to the sphenoid sinus, I must say that its involvement has been, in my experience, extremely rare. Occasionally I drag a polyp out of its depths, perhaps originated by infection in an adjacent posterior ethmoid cell. Yet I never fail to investigate the sphenoid when doing a radical ethmoid exenteration. In nearly every such case I resect the anterior sphenoidal wall (carefully avoiding the lower external angle, where a branch of the ascending palatine artery is likely to provide lively hemorrhagic possibilities, if sectioned), and assure myself of the physiological integrity of the cavity. So important do I deem this, in view of the many reported cases of optic nerve involvement from this source, that, if I cannot locate the sphenoid orifice, I make an operative opening into the anterior wall with a Grayson sphenoid burr (a very simple pro-

cedure), and enlarge this for inspection of the cavity.

May I add that sinus infections in infants and young children are almost invariably amenable to conservative treatment by means of proper irrigating and douching. It is the exception when operation is required.

You will observe that I have had nothing to say about the diagnosis or symptoms of accessory sinus disease. These do not fall within the purview of the title of this paper. But I cannot leave the subject without reference to one point in semeiology and one in diagnosis. The first is that frontal pain and tenderness do not, even in half the cases, point to frontal sinus involvement. A great many cases of antrum infection, and nearly all ethmoid infections, will produce frontal pain and tenderness of the frontal floor.

The other, the diagnostic point, has to do with the roentgenology of the situation. In the first place, every rhinologist should learn to read the radiographs of his sinus cases, even though he has not his own X-ray laboratory. No roentgenologist is capable of making a sinus diagnosis without careful consideration of clinical consultation; and the rhinologist should be ashamed to expect him to do it, and is derelict in his duty if he allows him to do it.

I cannot enter here into a discussion of the preferred positions for radiographs in these cases—for we have varying predilections; nor can I discuss the frequently contrasting findings of roentgenology and transillumination, and their differentiation as between the presence of pus and polyps, previous sinus disease and thickened mucosa, varying density of bony formation, and so on. But I do say that the greatest value of roentgenology in these cases lies not in its inherent diagnostic aid (in which sphere it is distinctly secondary to clinical observation), but in its corroborative value to a diagnosis already made or clinically suspected, and to a greater and more important degree in its definition of the area and distribution and relative position of the various sinuses and their connections, forming an important guide and check on whatever operative interference may be undertaken.

Finally, without, I assure you, the least intent to magnify any successes or minimize any failures that I may have encountered in the management of these cases, I can truly say that belief and confidence in the principles

just outlined have resulted in making it difficult to find, in a search of my records, a single case of sinus disease that was not adequately taken care of, and, so far as I know, cured. Always remember, if you please, that I am speaking as one who practices only in the "Sunny South", but who knows from contact and observation and contemporary reading that the farther north we go, and the more rigorous the climatic conditions that exist, the greater and more difficult and serious are the problems encountered in the management of nasal accessory sinus infections.

COALITION AS AN INDISPENSABLE FACTOR IN THE DIAGNOSIS OF PYORRHEA ALVEOLARIS.*

By JOHN BELL WILLIAMS, PH.G., D. D. S., Richmond, Va.
McGuire Clinic.

"Mighty things from small beginnings grow."—*Dryden*.

Pyorrhea alveolaris is a disease which has been destroying the teeth and their surrounding tissue since the dawn of civilization. Existing evidence indicates that beyond a doubt this insidious disease cast its shadow on the lives of the early Chinese, Egyptians, Phoenicians, Greeks and Romans; for in ancient literature their frequent allusions to "loose teeth" and "bleeding gums filled with corruption" can easily be interpreted today as describing pyorrhea.

NOMENCLATURE

The term "pyorrhea" was originated by a French dentist, Monsieur le Docteur le Dentiste Joirac, in 1822, and was generally considered incurable in that unenlightened day of dentistry.

Men attempted to treat the disease with mouth washes to induce "breath like a May morn." Even today we find survivals of the mouth-wash treatment which is so ineffective that it almost amounts to a superstition and is quite in keeping with the French custom of using perfume instead of bath tubs. Our laity are importuned by advertisements to use mouth washes for halitosis, while the American dentists attempt to teach that it is better to eliminate the debris than constantly to deodorize it.

John M. Riggs, of Hartford, Conn., in 1845 was the first to proclaim pyorrhea a curable disease. In his revolutionary paper he asserted that with proper surgical treatment 90 per

cent of all cases could be cured. He acquired an enviable reputation in America and abroad, and as a result of his work pyorrhea came to be known as "Riggs' disease." In recent years the American Academy of Periodontology has



Fig. 1.—Normal relation of bone and teeth.

adopted the title of "periodontoclasia" or "dental periclasia," as proposed by A. J. McDonough, of Toronto, meaning a breaking down of the tissues surrounding the teeth. Between the introduction of these titles no less than fifty-seven appellations have been offered to designate these persisting pockets of pus. In endeavoring to keep "up-to-date" with the numerous titles, we have frequently been forced to call into use the retort of David Crockett, who when he was criticized by a fellow member of Congress for his poor spelling, replied that a man must be a mighty poor speller if he could not spell a word more than one way. Whether this dread disease is called pyorrhea, periclasia or any of the other numerous "-itides" or "-asiae", is not so important as the realization of its fiendishness as a focalized infection.

PATHOLOGY

Pyorrhea alveolaris begins as a rule at the gingival border, progressing slowly toward the apices of the roots of the teeth. A complete destruction of the alveolar process and pericementum with exfoliation of the teeth is inevitable unless the disease is arrested by treatment. Some of the characteristics attending its progress are inflammation of gingiva usually spoken of as soft, swollen, bleeding gums, destruction of the floor of the gingiva

*Read before the Southside Virginia Medical Association at Hopewell, Va., March 8, 1927.

crevice, absorption of the alveolar process and the formation of suppurative pockets. Other characteristics are sensitiveness of thermal changes, separation, elongation and loosening of teeth. The first phenomenon to manifest itself in this disease is gingival inflammation which may come from various causes, of which



Fig. 2.—Normal appearance of soft tissues about central incisor, cuspid and bicuspid, with recession of the marginal gingival line about the lateral incisor.

uncleanliness of the mouth is paramount. Irritation of the gingiva from any cause of long standing will result in inflammation which may be carried through the gingival group of pericemental fibres to the pericementum and cause a break in the floor of the gingival crevice. Following upon this break the cementum, the pericementum and alveolar process are thrown open to ruinous irritation and infection. The destruction of the alveolar process and pericementum is followed by shrinkage of the gums and bone resorption resulting in the formation of pockets where the bacterial flora of the mouth find their way. The bacteria of the mouth are not believed to have any direct primary relationship to pyorrhea; they are considered secondary trespassers only.

RELATION TO SYSTEMIC DISEASE

It is certain that the day when dentistry was judged in terms of gold shell crowns and false teeth has been relegated to the past and rests in the archives of that era in medicine when calomel was king and blood-letting the anchor of hope. For her renaissance dentistry owes much to the study of systemic disease, for what Shakespeare did for the theatre, what Patrick

Henry did for the Revolution, what ether did for surgery, focal infection has done for dentistry.

It would be as presumptuous for a dentist unassisted by a physician to attempt to diag-

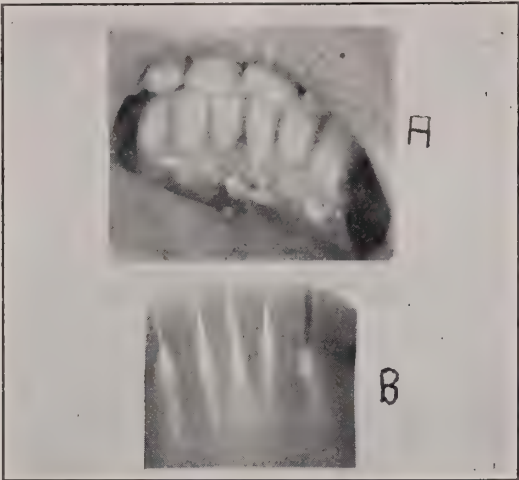


Fig. 3.—(a) Destruction of soft tissue about an incisor tooth. (b) Radiograph of same tooth fails to show presence of the disease, because the bone destroyed by the lesion is over-shadowed by the tooth.

nose such systemic diseases as those of the heart and pericardium, serous membranes, joints, gastro-intestinal tract, eye, genito-urinary tract, etc., in relation to any form of oral sepsis as it would be impossible for a physician to diagnose and treat decayed teeth. The dentist struggling alone is about as far from even a working knowledge of these systemic

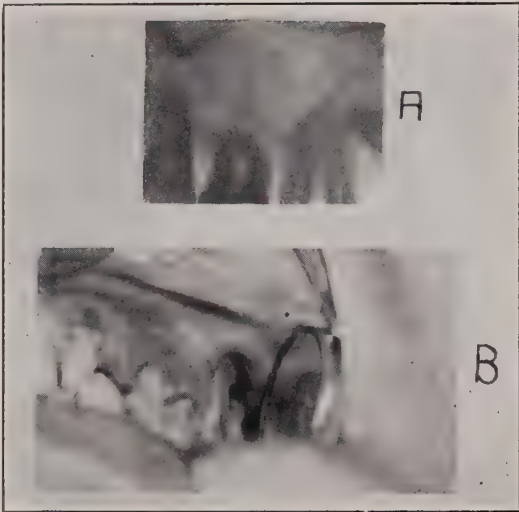


Fig. 4.—(a) Radiograph of bicuspid and molar teeth fails to show any destruction of bone. (b) Photograph of same teeth showing the absence of the buccal plate of bone about the first molar.

diseases as Benjamin Franklin was from the radio. The dental examination is merely one of the elements from which the finished diagnosis is synthesized. The master chemist in this building process must be the doctor of general medicine or surgery. He is not the dentist, the roentgenologist, nor is he the otolaryngologist or any worker in a special field. With the doctor of general medicine or surgery lies the responsibility of sifting the essentials from the non-essentials and of reducing the mass of special work to manageable form. The importance of pyorrhea in this melting pot is summed up by James H. Smith* as follows:

"The subject of pyorrhea is one which I think may not receive the attention it deserves

(1) A clinical examination without an X-ray examination.

(2) An X-ray examination without a clinical examination.

(3) A combination of these two procedures. Box* has enumerated twenty "signs" of early periodontal disease:

(1) Traumatic crescent.

(2) Congestion of marginal gingiva.

(3) Mobility No. 1.

(4) Recession of the marginal gingival line.

(5) Asymmetric recession of the marginal gingival line.

(6) Recession of the alveolar crest line.

(7) Increased radiolucency of the alveolar crest of lamina dura.

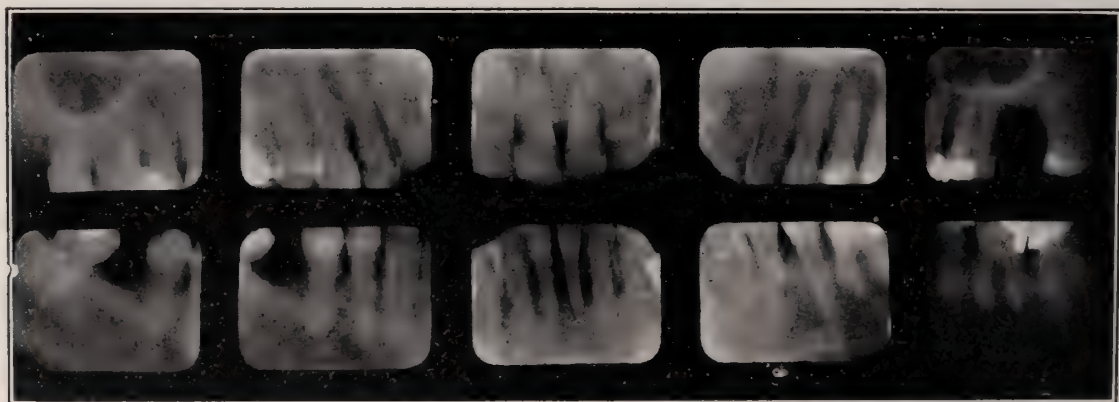


Fig. 5.—A beginning of bone destruction about several teeth with advanced destruction about the lower incisors. Note area of apical change about the upper left second bicuspid and second molar.

at the hands of internists, though I may be unjustly ascribing my own tendencies to others. We think of it as esthetically objectionable, and as a liability for the entrance of bacteria into the digestive tract, believing, however, that under normal conditions they will be taken care of. But as sources of toxic absorption by way of lymphatics, we are inclined, I think, to regard pyorrhea lightly, counting on its superficial localization and unimpeded drainage to avoid the role of foci of infection. I am inclined to believe we may now underestimate its constitutional effects even as once we possibly overestimated them."

DIAGNOSIS

Today three methods are employed in the diagnosis of pyorrhea alveolaris:

(8) Disturbance of normal contour of the alveolar crest.

(9) Increased widening of the pericemental space.

(10) Mobility No. 2.

(11) Shortening of the crest of the septal gingiva.

(12) Linear depressions in the alveolar mucosa.

(13) Stillman's clefts.

(14) Absence of stippling.

(15) Festoons.

(16) Injection of blood vessels.

(17) Increased depth of the gingival crevice.

(18) Epithelial nodules.

(19) Distended veins in the mucosa.

(20) Pus cells in the crevicular exudate.

*Smith, James H., M. D.: The Dental Problems of Internal Medicine. *Dental Cosmos*, October, 1926.

*Studies in Periodontal Pathology, Harold Keith Box, D. D. S., Ph.D., F. A. A. P., Canadian Dental Research Foundation, Toronto.

Four of these signs can be determined only by the use of the X-ray. Eight can be seen only upon clinical or microscopic examination, while with the remaining eight signs pyorrhea will leave its trace so profoundly as to be seen either by the eye or upon an X-ray plate.

It is as certain that the presence of pyorrhea as shown on a radiograph cannot always be determined by a clinical examination as it is manifest that pyorrhea may be present but show no evidence of its manifestations upon a radiograph. The reason for this is because the character of the tissues is such that the changes in the hard tissues, that is the cementum and bone, cannot be seen upon clinical examination, while changes in the soft tissues, that is the gingiva and pericementum, cannot be transposed to a radiograph. Another reason the radiograph sometimes fails is because

hanging fillings, improperly fitting crowns and other forms of irritation. Obviously this must be done by a dentist. The second part of the treatment is to balance the occlusion, that is the correction of "traumatic occlusion", or "pernicious percussion", so that the stress of mastication will fall equally upon all the teeth. This is done by grinding the chewing surfaces of the teeth until they "hit" uniformly. The third and most important part of the treatment is preventive as well as curative. In its application the physician has an opportunity for rendering a great service toward postponing the "toothless age." This part of the treatment consists of purging the blood content of the periodontal vessels at least twice daily. It is carried out by the correct use of a good tooth brush. The average drug store tooth brush is improperly shaped, too soft and entirely too large for any human being's

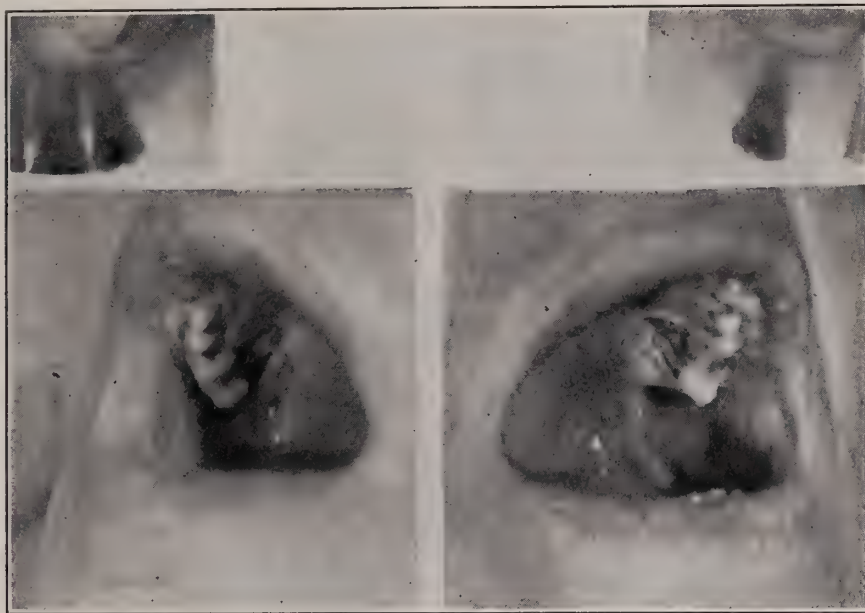


Fig. 6.—Photograph of maxillary molar teeth showing extensive bone destruction about the palatal roots. Radiograph fails to show this destruction of bone.

the teeth set between two plates of bone. One of these plates may be destroyed while the opposite plate remains standing to be recorded on the radiograph, shielding the destruction of its fellow.

TREATMENT

Treatment for pyorrhea is divided into three parts. The first part is to scavenge the mouth of all debris, deposits, necrosed tissue, over-

mouth. A brush that can be brought into contact with the tissues about all the teeth must be small. To properly massage these tissues it should be hard. A good technique for using the brush has been introduced by Paul R. Stillman,* of New York. It consists in placing the bristle ends of the brush partly on the gingiva and partly on the cervical portion of

*Stillman, Paul R., D. D. S., F. A. C. D.: Physical Culture for the Gingivae. *Dental Cosmos*, October, 1924.

the teeth. Sufficient pressure is applied to effect a perceptible "blanching" of the gingival tissues. As the pressure is released there is a rapid inrush of blood causing a marked "blushing." This act is repeated several times about all the teeth. The result is a cleansing of the teeth and a distinct massage to the soft parts. It supplies the highest degree of cleanliness and health to the teeth and surrounding tissues.

I have presented a great many details relating to the causes, pathology and treatment of pyorrhea at the risk of becoming tedious to a body of physicians, but they are facts essential to a discussion of this subject because the minor details are the small irritants that are "like unto the mustard seed, which is the least of all seeds, but when it is grown it is the greatest among herbs and shooteth out great branches."

CONCLUSIONS

(1) The term periodontoclasia appears more appropriate than any other title for describing diseases of the investing tissues of the teeth.

(2) The term pyorrhea is more generally used in describing these conditions.

(3) The manifestations of this disease are to be seen in almost every adult mouth.

(4) Its importance as a focalized infection is generally conceded.

(5) Its successful treatment depends upon early recognition.

(6) Early recognition is dependent upon careful co-operation of clinicians and roentgenologists.

(7) It can often be diagnosed by a clinical examination alone, but its extent can never be determined or proper operative treatment applied without an X-ray examination.

(8) An X-ray examination will frequently show evidence of pyorrhea which cannot be seen upon clinical examination.

(9) An X-ray examination alone will sometimes fail to show an active pyorrheal process.

(10) The safest method of examination is a combined X-ray and clinical examination.

(11) In the prevention as well as in the treatment of pyorrhea, correct brushing of the teeth and gums is the core of the whole subject.

INFECTIOUS JAUNDICE.

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

Infectious jaundice is a disease that has been recognized as a clinical entity since 1849¹; a disease that has assumed epidemic proportions both in war and in civil life, where individuals have been forced to live among insanitary surroundings. It is likewise a disease that occurs sporadically, and as such is probably encountered more frequently than is generally supposed. Whether we are justified in classifying infectious jaundice into a single, or into several separate categories remains to be seen, and awaits the final demonstration of the infective agent in the case of epidemic icterus, and doubtless also in those cases of so-called catarrhal jaundice. It seems likely from what is already known of this whole class of icteric diseases that the common etiological organism when demonstrated will be a spirillum.

Since Schaudinn demonstrated the *Treponema pallidum* (Syphilis) in 1905, the number of infectious diseases recognized as due to spirochetes has steadily increased. Under this heading are now classed the *Spirillum of Vincent* (Vincent's Angina), *Spirochaeta Obermeier* (Relapsing fever), *Spirochaeta morsus mura* (Rat bite fever), *Spirochaeta pertenuis* (Yaws), *Leptospira icteroides* (Yellow fever) and *Leptospira icterohemorrhagiae* (Weil's disease).

I. SPIROCHAETOSIS ICTEROHEMORRHAGICA (WEIL'S DISEASE)

Weil's disease was first recognized by Larrey and Ozanam (1849). It was first described accurately by Weil (1886)². The first demonstration of the causative organism was made by Inada, (1913)³, and since then it has been successfully cultured on artificial media, using the method by which Noguchi for the first time grew the treponema of syphilis.

This type of infectious jaundice occurs widely throughout the world. It was recognized among the troops on every battle front in the recent war—French, Japanese, Canadian, British, Rumanian and Italian. Epidemics of it have been studied and described in Japan,⁴ especially in mines where the adjacent soil is alkaline. Sporadic cases are everywhere met, but in this country very few instances are on record in which the causative organism has been isolated. In January of

this year, Hayman⁵ reported the fifth case. Cushing⁶ has recently demonstrated it in two cases in Bellevue Hospital, New York City.

The Japanese,⁷ who have added most to our knowledge of this disease, describe it as presenting three phases. *First*—Febrile stage, 7 days. There is a sudden onset with chill, fever, injected eyes, herpes, hemorrhages, headache and muscle pains. There is albuminuria, enlargement of the liver and tenderness of the abdomen. Organisms (leptospira) occur in the blood, liver, spleen and adrenals. No immune bodies are demonstrable. *Second*—Icteric stage, 7th to 13th day. Jaundice usually begins on the fourth day. There is a peculiar greenish tint present in the skin. The pulse is slow, itching and other symptoms of jaundice exist. The leptospira now leaves the blood stream, liver and adrenals. It is still present, however, in the kidneys and urine. Immune bodies can now be demonstrated in the blood. This is the period during which death, if it occurs, is to be expected. *Third*—Convalescent stage, 13th to 16th day. Jaundice begins to fade. Anemia and wasting are now important features. Immune bodies reach their height in the blood serum. Organisms are present in the kidneys and urine.

CASE REPORT.

A university student, aged 20, presented himself because of jaundice of three weeks' duration. He had taken part in a swimming meet and almost immediately became suddenly and acutely ill. He entered the University of Virginia Hospital as a suspected case of grippe. Headache, fever, pains in the back, nausea and vomiting were distressing and continued off and on for the first week. He had no appetite and was quite constipated. His temperature is said to have reached 104° F. On the second day of his illness he became jaundiced, his stools were observed to be light and his urine dark. There were no hemorrhages.

Examination three weeks after the onset showed that he was still markedly jaundiced, though he was up and about. His temperature was normal. The stools were light though not clay colored. The urine was dark and showed bile. There were both albumin and casts in the urine. The icteric index was 75. Several duodenal taps got quantities of dark bile. The liver and spleen were not palpable. He continued to be constipated, showed little appetite and lost weight. The blood serum was sent to Dr. Noguchi, of the Rockefeller Institute, who found that it completely destroyed leptospira icterohemorrhagiae, establishing the diagnosis of Weil's disease.

On the twenty-eighth day of his illness he began to complain again of headache, loss of appetite, constipation and general malaise. His temperature rose to 101°-102° F. After one week in bed he became markedly better, the jaundice began to clear and five weeks after the onset he was able to return to his work. Though still jaundiced, the urine was bile free. At the time of his second febrile reac-

tion, urine was injected intraperitoneally into a guinea pig. This pig did not develop jaundice and has remained well.*

Correspondence with Dr. H. B. Mulholland, of the University of Virginia Hospital, who saw this patient when he was first taken ill, disclosed the fact that blood withdrawn at that time was injected into guinea pigs from whom, he reports, the leptospira icterohemorrhagiae was isolated. This was an interesting verification of Pfeiffer's reaction already demonstrated in the blood serum by Dr. Noguchi. Dr. Mulholland plans to report this case and his work upon it during this stage in a separate paper. His findings were made entirely independent of the subsequent history.

II. EPIDEMIC INFECTIOUS JAUNDICE

Jaundice of an epidemic nature occurred in 22,509 soldiers during our Civil War. There were 161 deaths in this number. 5,648 cases were reported as occurring in the South African war. In 1917, in Mesopotamia alone, there were 4,171 cases. Colonel W. H. Willcox⁸ has admirably reported this epidemic in his Lettsomian Lectures on jaundice. There have been civilian epidemics of jaundice in the United States since 1812. As Blumer's⁹ studies showed, practically every state in the Union has been affected. There were small epidemics in Norfolk in 1812, at Halifax Court House in 1856, and in Richmond in 1860. In 1922 Williams¹⁰ reported an epidemic of 300 cases among school children in New York State. Symmers¹¹ and Witt¹² both described small outbreaks from Bellevue Hospital.

Willcox from an enormous experience gives the symptoms as follows: a prodromal period of abdominal discomfort, anorexia, nausea, occasional vomiting, diarrhea and constipation. The onset is marked by a mild pyrexia and chilliness. The tongue is furred. There is vomiting, headache and "pains all over". About the fourth day jaundice gradually begins to appear. The liver, spleen and right heart are enlarged. After a mild course—usually three weeks—the patient is convalescent. Severe and fatal cases were occasionally encountered. Yellow atrophy of the liver was noted in a few of the fatal cases. The mortality was far below that of Weil's disease—0.4 per cent as against an average mortality of 30 per cent. No organisms were found after elaborate and thorough laboratory investigation of the Dardanelles' epidemic. Other workers in similar outbreaks have been unsuccessful in establishing the causative organism.

*Inada denied the occurrence of relapses. He speaks instead of after-fevers due, he thinks, to disintegrating toxins at the height of immunity. He bases this on the fact that at this time there is no return of the main symptoms and the blood is not infectious.

A small epidemic of infectious jaundice was recently encountered in Richmond school children. Three children, each eight years old, occupying adjacent seats in a school room, simultaneously developed a similar train of symptoms, the prominent features of which were anorexia, languor, mild gastric and intestinal complaints, slight temperature, enlargement of the liver, jaundice, clay colored stools and bile in the urine. After one week all of the stools again showed the presence of bile. A study of the urine sediments under the dark field revealed no spirochetes. Guinea pigs were inoculated intraperitoneally with 6 c.c. of fresh urine from each case during the first week. The pigs were bled from the heart after forty-eight hours and the blood serum searched under the dark field. No organisms were found. All of the pigs survived. After ten days the urine was again inoculated into guinea pigs, also with negative results.

Three weeks after the development of these three cases, other cases began to appear. In the home of one of the children a younger brother and sister each developed the disease, the only other brother escaping. Another of the original cases infected her younger brother. The third did not infect any of his three brothers and sisters, who were older than he. At this time three other cases developed, one in the same class room, two others from a different class. In all, eight cases of jaundice appeared, three simultaneously; and three weeks later, five others who were definite contacts. Six of these cases were seen and studied by us. It is to be noted that home contact between school children and children who were not in school was a prominent feature of this outbreak. The disease is evidently carried from person to person, though in this instance the contact was usually an intimate one—those first affected sat side by side in school and the secondary cases were brothers and sisters. The great majority of the other children in the same school room were unaffected. These observations are at variance with the assertion of Willcox that "the epidemic character appeared due to a common cause rather than a spread from person to person". He asserted that instances of infection from patient to patient in the hospital were not common.

CASE REPORTS.

Case 1. An eight year old boy, who had been perfectly well except for tonsillitis a month previously, became listless, constipated and lost his appetite. The next day he complained of pain in the epigastrium and nausea, and vomited moderately. Jaundice of the skin and mucous membranes, clay colored stools and dark bile-containing urine were noticed. Pulse 72. Temperature 99.5° F. The liver margin was firm, but not tender, and extended one inch below the costal border. After two days, most of the symptoms subsided, but jaundice, palpable liver and characteristic stools and urine continued for one week. On the seventh day a distinct yellow color began to show in the stool.

Case 2. A previously healthy girl of eight years was given calomel by her mother for constipation. She appeared well for a week. Her mother then kept her in bed because she refused food and was again constipated and very languid. There was no pain, nausea or vomiting. No symptoms referable to the head, heart, lungs, kidney or nervous system. Examination disclosed moderate jaundice of the mucous membranes and skin. The liver was palpable one inch below the costal margin, not tender. Spleen not felt. Slight elevation of temperature. Physical examination otherwise negative. Urine contains considerable bile, stool light grey. After several days symptom-free, except for jaundice. Color returned to the stools after one week.

Case 3. A boy of eight was noticed to be pale, irritable, and without appetite. He was put to bed after having a large foamy loose stool. No temperature. Next day he had no complaint except languor. No pain, nausea, vomiting or other symptoms. On the second day jaundice of the skin and mucous membranes was noticed. Urine dark and stool light. Spleen and liver negative. Remaining physical examination negative. After one week color began to return to the stool.

Case 4. A boy of seven had a stomach upset, with foul breath and headache. Three weeks previously his sister had had jaundice. He temporarily improved and returned to school. At this time he showed no alteration in the color of his skin, stools or urine. One week later the conjunctivae became violently inflamed and fever developed—102° F. was the highest. No nausea or vomiting, no pain in abdomen. Anorexia. Constipated. Twelve days after onset, urine became dark. Parents had not noticed any jaundice. For a few days had had a cough and a head cold. Examination disclosed an acutely ill boy with slight jaundice of the skin and mucous membranes. Temperature 99.5° F. Pulse 110. The nose and throat were slightly red. The heart and lungs were normal. The lower margin of the liver could be felt one inch below the costal border, not tender. The spleen could not be felt. The urine showed bile. Icteric index was 15. The urine showed albumin but no casts. Blood count—W. B. C. 6,000; R. B. C. 4,130,000; Hgb., 74%. A guinea pig into whose peritoneum 5 c.c. of blood was injected, survived symptom-free.

Case 5. A boy four years old (brother of one of the first cases), was awakened at 5 A. M., vomiting phlegm. In bed all day, no temperature. Next day better. Next day had pain in his abdomen, which was relieved by enema. Temperature 102.5° F. Large foamy stool. Two more later. No temperature next day. Coughing, pain in stomach, no appetite. Three days later, dark urine (6th day). Next day vomited, pain in abdomen, no temperature, jaundiced, bile in urine. Next day stool yellow with brown streaks. Progressively better, but urine still dark on the 11th day of the disease. This case occurred three weeks after the outbreak of the contact case.

Case 6. A girl three years old (sister of one of the first cases). Severe attack of urticaria of one day's duration. Pain in abdomen, vomiting. Temperature 101° F. Two days later much pain in the abdomen, distention, belching. Temperature 103° F. Mucus in stool. Three days later, urine dark. On the 4th day, no temperature. On the 8th day, suggestion of clay colored stool. Slight jaundice noticed the same day. Bile in urine. Very yellow on the 9th day. Same day color began to come back in the stool. After the 12th day, much better. This case also occurred three weeks after the outbreak of the contact case.*

ETIOLOGY

Epidemic jaundice is recognized as contagious. A soldier sleeping in a barn with seven or eight other soldiers has been known to infect them all. However, we know neither the organism nor the method of conveyance.

Rats have been suspected of being the most important factor in the spread of Weil's disease. In Japan (40 per cent), in America (10 per cent), and elsewhere rats have been shown to harbor pathogenic leptospira icterohemorrhagiae in their kidneys, and to excrete them in their urine. Victims of Weil's disease are thought to become infected through contact with rat contaminated soil, (bare footed miners), or from articles of food to which rats have had access. These findings "seem to be particularly important in revealing a latent danger to which we have been constantly exposed, but from which we escape as long as sanitary conditions are not disturbed by untoward events." No contact with rats, however, could be shown either for our case of Weil's disease or for the eight cases of epidemic jaundice reported. Emulsions of the kidneys of a number of Richmond rats were injected into guinea pigs with negative results.

Several of our cases were tested for immune bodies. The serum of the case of Weil's disease completely destroyed leptospira icterohemorrhagiae. The sera of three of our other cases were likewise tested by Dr. Noguchi. None of them reacted to leptospira icterohemorrhagiae, but they did react to a leptospira recovered from ice box water. It was not possible to collect drinking water for examination to which our cases had access. These appear to be very suggestive results. As said, no one has yet demonstrated the organism of epidemic jaundice. A tremendous amount of work was done on it by the British

during the recent war, with negative results. Dr. Noguchi's findings certainly indicate the need for further studies in epidemic jaundice, dark field examinations of blood and urine, and the inoculation of guinea pigs in all stages of the disease.

TABLE I

A COMPARISON OF EPIDEMIC JAUNDICE AND WEIL'S DISEASE BASED ON THE CASES HERE REPORTED.

EPIDEMIC JAUNDICE		WEIL'S DISEASE
One week	Duration	Six weeks
Unknown	Etiology	Leptospira icterohemorrhagiae
Immune Bodies		
For leptospira from ice box water		For leptospira icterohemorrhagiae
Intense and sudden	Jaundice	Slight and gradual
None	Hemorrhage	None
None	Splenic Enlargement	None
Moderate	Hepatic Enlargement	None
One week, slight	Fever	One week, high
Light	Stool	Variable
One week	Bile in Urine	Five weeks
6-18	Icteric Index	75
Absent	Casts and Albumin	Present
None	Relapse	One
0.4%	Accepted Mortality	30%

EPIDEMIC JAUNDICE VS. WEIL'S DISEASE

A comparison of the two diseases here reported brings out the following differences. In our cases of epidemic jaundice the duration was one week, the icterus was of gradual onset and mild, the fever was slight, the urine was negative, the liver was enlarged and there was no relapse. No organisms were found though the sera reacted with a leptospira. On the other hand, in Weil's disease the duration was more than five weeks, the jaundice came on suddenly and was very intense, the urine showed casts and albumin, there was no enlargement of spleen or liver, a relapse occurred after four weeks, leptospira icterohemorrhagiae was demonstrated in the blood (Dr. Mulholland) and later the convalescent sera reacted to the Rockefeller strain of leptospira icterohemorrhagiae. The difference in mortality between the two diseases should be noted—0.4 per cent for epidemic jaundice against 30 per cent for Weil's disease.

*Cases No. 7 and No. 8 were seen by Dr. J. O. Fitzgerald and presented similar symptoms.

III. CATARRHAL JAUNDICE

Cockayne¹⁵ believes that catarrhal jaundice is the sporadic or endemic form of epidemic jaundice. The French, Brulé¹⁶ in particular, hold to the same view, regarding catarrhal jaundice as an infectious disease due to alteration in the hepatic cells and not the result of obstruction. Eppinger¹⁷ and also Stadelmann¹⁸ showed intrahepatic mucous, bile-stained plugs blocking the bile-canalculi, and claimed to find them only in non-infectious icterus. The old idea of a mucous plug obstructing the ampulla of Vater is not tenable. Autopsy findings do not substantiate it and clinical experience, with gall-bladder drainage through a duodenal tube, shows the bile usually flows freely in cases of catarrhal jaundice. The occurrence of catarrhal jaundice in adolescence, the immunity conferred by one attack, the similarity of its symptoms to infectious jaundice, the occasional development out of it of Icterus Gravis, or acute yellow atrophy of the liver, point to an infectious disease involving the finer ducts and cells of the liver in varying degrees. This theory is not really in conflict with Eppinger's description of mucous plugs in the ducts, because such accumulations may easily form as a part of a diffuse cholangitis.

There is need for more study of these very interesting outbreaks of icterus. *Leptospira* may be a comparatively recent invader of the human body as Noguchi suggests. As it gains in virulence by repeated animal passage, we may expect more serious consequences and a higher mortality. The relatively high mortality among the Japanese is explained also by Noguchi on these grounds. These spirochetal infections doubtless occur about us more frequently than we realize. It is important to know that though the organism may not be always demonstrable, the serum reaction for immune bodies can be done, and is as informing as the Widal reaction in typhoid fever.

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ON HEMORRHAGE AS A COMPLICATION OF TONSILLECTOMY.*

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There is probably no kind of medical information which it is so important that we should possess, in an accurate and complete form, as that which concerns the surgical emergencies; for its province is not the indefinite interwoven boundary between health and disease or between disease and death, but rather the slender, delicate thread that connects almost perfect health with sudden death.

Tonsillectomy is practically always an operation of election, done to prolong life and not to save it. The patient comes to us direct from school, the work-shop, the office, and we promise that within a week or so he shall be back again at his accustomed avocation, better fitted than before for life's activities. If it happen otherwise, the fault is naturally placed at our door.

The removal of tonsils when done by a competent laryngologist familiar with his ground, versed in all the technicality of his profession, and prepared for every emer-

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gency, must be regarded as an operation almost free from hazard.

But as you know the operation is not altogether in good repute with the general public, and the reason will appear.

A patient comes to you from his family physician, with the request that you examine the tonsils to determine if they may be the possible source of an obstinate arthritis, or of an obscure heart affection, or of repeated attacks of kidney inflammation, or of a persistent duodenal ulcer, or, perhaps, of an otherwise unexplained high blood pressure or general ill health.

You examine carefully and discover that he has soft spongy tonsils, with abundant pathological exudate easily expressed from the crypts, or that the surface of the tonsils appears ragged, irregular, deeply furrowed, with scars and adhesions which bespeak past suppurative inflammation, or that they are of the imbedded type, with dilated crypts whose contents are imprisoned by an abnormally extensive plica, or that the pillars are congested, swollen and edematous, indicating a possible pus focus; you note that the patient has enlarged cervical glands and you may see evidence of involvement of the Eustachian tube, and you may obtain history of former local trouble as an attack of peritonsillar abscesses. In other words, the case is such as to convince you that the tonsils are diseased, and you feel conscientiously bound to recommend their removal as a probable cause of trouble.

The patient hesitates and you inquire his reason. He will tell you frankly that he fears the outcome, and above all he fears a possible hemorrhage. Never having had a fatality in your own immediate practice, you assure him that his fears are ill-founded and that the danger is nil. And then this particular patient will recite to you instances that have come within his personal knowledge of serious accidents and even death. He tells you of an intimate friend, a relation or a neighbor who went to the hospital in comparatively good health, and, after this supposed simple operation, was taken home dead.

I have heard this and you have heard it, not once, but a number of times, and there is but one conclusion; it is that too many untrained, unskilled, inexperienced persons are performing the tonsil operation, under the

impression that it is always a simple and perfectly safe procedure. And so without adequate knowledge of normal and possible abnormalities and with disregard of surgical principle, they hack and slash and mutilate the pillars, cut away the underlying muscle, and lacerate large vessels.

Schaeffer⁵, in an excellent recent article dealing with anomalies in the blood supply of the tonsil region, takes occasion to mention three cases of death from sudden and excessive hemorrhage during tonsillectomy, that had come under his personal observation.

One patient was a woman and the operator a well-known specialist; the second a girl, the operation being performed by an occasional operator; and the third case a girl, the operation being done, he says, by a would-be surgeon, evidently not versed in tonsil work.

One of the most tragic incidents that I have seen recorded in the literature is that of a surgeon of Chicago who journeyed to a small neighboring town to operate on three cases at the request of a medical friend, one of the cases being his daughter. The surgeon after the operation left hurriedly, supposing all was well. The next morning over the telephone he learned the sad news that the little daughter of the physician had died during the night of a hemorrhage which could not be stopped.

Impressed with the rather prevalent rumors of fatalities attending operations upon the nose and throat, H. W. Loeb⁹ undertook, by means of a questionnaire sent to physicians practicing this specialty, to collect all authenticated cases of death fatality not previously reported. Deaths from anesthetic were excluded, as likewise those attributable to some already existing known illness. In other words, they were cases in which the operations were elective and the death unexpected and apparently unwarranted. He collected 332 of such fatalities, and of these there were 41 due to hemorrhage following tonsillectomy.

H. G. Hill⁶ sent out a questionnaire limited to tonsil problems and, in order to better insure obtaining desired information, specified that reports as to death due to tonsillectomy, instead of being confined to personal experience, should include all cases that had come within the knowledge of the reporters.

One prominent operator reported eleven cases of fatal hemorrhage, one reported four

cases, one reported three cases, four reported two cases. That is, of the fifty laryngologists questioned, seven reported twenty-seven cases of death from hemorrhage which had come to their knowledge.

The most recent statistics of death fatalities are those given out by F. W. Bailey, obtained by a questionnaire sent to 400 laryngologists. They are really more alarming than any one of the others. Twenty-seven out of 350 operators who replied reported death from hemorrhage following removal of tonsil, which means that out of every thirteen operators one had had death from this cause.

The hemorrhage of tonsillectomy is usually classified as primary and secondary.

By primary we mean the bleeding which occurs at the time of the operation or directly succeeding. The term secondary is applied to the bleeding which occurs several days after the operation, due to reopening of vessel from separation of slough or surrounding necrosis.

A hemorrhage which occurs comparatively often only a few hours after the operation and often referred to as secondary, is not strictly secondary at all, but a delayed primary hemorrhage. It is due to the fact that some bleeding was overlooked or not sufficiently stopped at the time of the operation.

Real secondary hemorrhage does not occur until forty-eight hours after the operation, and may occur on the third, fourth and fifth day and even later. Dr. V. Dabney² has reported some interesting cases of late secondary hemorrhage following tonsillectomy, one as late as the tenth day.

Hemorrhage is a most deplorable complication of the tonsil operation, even when the final outcome is fortunate.

Occurring at the time of the operation, it lengthens the duration of the anesthetic, increases the amount of shock and retards recovery, and, if it has necessitated much instrumental manipulation, or the sewing of the pillars or the retention of sponges or of some hemostatic apparatus, the patient is in for much local reaction and a generally disagreeable picric acid.

If the hemorrhage occurs subsequent to the operation, it may prove very disturbing for surgeon as well as for patient, for now the surgeon has to deal with a patient who has just been through an ordeal, whose resistance

is lowered and his nervousness and anxiety increased, while his throat is too sore and painful to tolerate manipulations.

Just how frequently hemorrhage of such severity as to be a serious complication occurs, it is difficult to say, for, appearing in all gradations of severity, it is subject to arbitrary distinctions, and besides, unfortunate experiences are insufficiently reported.

According to Yerger, out of a thousand tonsillectomies done at Johns Hopkins in 1911, there were thirty-eight cases of troublesome hemorrhage, twenty-six of which were designated as slight and twelve as severe.

Cocks¹, in 1912, stated that at the Manhattan Eye and Ear Hospital, with an average of 200 cases of tonsillectomy per month, there were always about eight to twelve cases each month of severe post-operative hemorrhages.

O. Wilkinson¹³, in 200 consecutive cases of tonsillectomy under local anesthetic, had four cases of primary hemorrhage and three of secondary (one to thirty). Mygind¹⁰, in 171 cases under local anesthetic, all adults, had to contend with fourteen cases of secondary hemorrhage (about one in every twelve), while R. McKinney¹⁴ reports that he encountered four cases of severe hemorrhage in a series of fifty cases of tonsillectomy done under local anesthetic using the Sluder method.

Dr. Beaman Douglas⁷ reports that there were 1,560 cases of tonsillectomy done at the Post-Graduate Hospital in New York in 1919, and that in more than six out of every hundred the physician had to be summoned to the ward after the operation on account of bleeding. H. A. Barnes¹¹ states, in 140 cases of tonsillectomy in adults, the hemorrhage was of such gravity to require suturing of the tonsil in four patients (that is one for every thirty-five).

At the Episcopal Hospital, this city, there are no records kept of incidence of hemorrhage, but I took occasion to question different members of the House-Staff, and, comparing their answers, I gathered that on an average of twice a week there is a summons from nurse to room or ward on account of a post-operative bleeding, and that on an average of twice a month a patient has to be taken to the operating room and re-anesthetized on account of hemorrhage not otherwise controlled.

Now and then some surgeon makes the

statement that he never has any trouble on account of hemorrhage. Recently, such a remark was made by a prominent laryngologist in this city in the presence of a hospital interne, who had on that day been called to the bed-side to stop a very troublesome hemorrhage in a patient operated on by this same surgeon. The interne did not think it was a good occasion to add to the sum of this surgeon's experience, but he added a little, silently, to his own. As an illustration of the hazard of the attitude of unconcern, I must refer to a recent experience of my associate, Dr. E. R. Shepherd. An operation having been done by a certain surgeon at a certain hospital in this city, the patient was allowed the next day to go home. Two days later the patient was brought back to the hospital on account of bleeding. The surgeon in the case, not being available, on account of departure from the city, the interne undertook to stem the bleeding under general anesthetic. It was only temporarily successful, for later on the same day, the hemorrhage continuing, another attempt was made under general anesthetic to stop it. But the bleeding persisted, and that evening Dr. Shepherd, being called, found the patient exsanguinated, and in a state of extreme collapse. Now for the third time the patient had to be subjected to general anesthetic. This time, fortunately, the result was permanent, for, after several sutures in the bleeding area, there was no return of the hemorrhage.

A question that is frequently and sometimes almost acrimoniously discussed is whether the incidence of hemorrhage is greater with the operation done under local or general anesthesia. It is certain that the bleeding attending the operation can be brought to a minimum with the local anesthetic when combined with adrenalin.

But there is always some reaction from the latter agent, which must be in proportion to the concentration, and this will naturally tend to bring about delayed primary hemorrhage. A certain proportion of cases besides have an unpleasant idiosyncrasy for this drug.

With ether there is usually freer bleeding at the time of the operation, but this is in a sense a guarantee against trouble as it stimulates the operator to greater care in effecting a complete hemostasis at the time.

During my military service overseas, fol-

lowing the policy then in force with the medical corps of the army, I performed a great number of tonsillectomies by the local anesthetic method; and I must say I was impressed with a proportion of after-bleeding to which I had not been accustomed in my civil practice, with operations done for the most part under general anesthesia.

In addition to all the danger of a hemorrhage *per se*, we may have to involve in the charge against it a complication that follows sometimes in its wake and believed by certain authorities to be directly due to its occurrence. I refer to the pulmonary abscess, to which the attention of the profession was especially directed by Dr. C. W. Richardson¹², in 1912. Since then a number of cases have been reported in various parts of the country. Mayer, for example, reported in 1916 as many as nine cases having come under his personal observation in the Mt. Sinai Hospital in the course of a single year.

According to some authors the pulmonary complication is to be attributed to a thrombosis of the veins in the tonsillar bed, others to inspiration of septic material from crypts, while still others believe it is due to the presence of blood in the pulmonary organ.

It should be mentioned that Myerson⁸ has shown by a routine direct laryngoscopy and tracheo-bronchoscopy of a large series of cases, even when extraordinary precautions have been taken, that some blood will practically always be found in the tracheo-bronchial tree.

The careless opening of veins in a region that is naturally septic should not be lightly regarded, and there is in the possible occurrence of pulmonary abscess as a complication additional reason for extreme care both in preventing hemorrhage and avoiding traumas that induce sloughing and necrosis of the tissues.

With regard to hemorrhage, it is well to keep in mind all causes that might predispose to its undue occurrence. First of all, one must consider the possibility of anomalous disposition of the blood-vessels and always before operating there should be a survey of the fauces to discover the presence of unusual pulsations in the tonsil region. A strong visibly pulsating posterior pillar may indicate an aberrant internal carotid which

can in some cases come into very dangerous proximity.

Some operators are in the habit of operating immediately after recovery from an acute inflammatory process in the tonsils or pharynx. This I regard as a very bad practice and responsible not only for a greater than normal bleeding, but also giving rise to much local reaction and danger of infection. One should never operate under two weeks following an acute tonsillitis or peri-tonsillar abscess.

Disease of the kidney, uncomplicated heart lesions, and certain vascular and circulatory diseases are known to greatly favor bleeding.

Every patient should, then, have the benefit of a preliminary general examination, and in the case of adults special attention should be given to the state of the arteries and the degree of the blood pressure.

Of the blood dyscrasias, most emphasis is placed upon a condition designated as hemophilia. This term, however, is very loosely used, and we are convinced that true hemophilia is exceedingly rare.

The coagulation test as a guide to probable hemorrhage is in many hospitals now a routine procedure. Nevertheless, grave doubt has been cast upon its value by recent observation. The average normal time is supposed to range between three and one-half and four and one-half minutes, but Dr. George Richards⁴, in a study of a series of 500 cases in which the test was made, noted that in none of the cases in which hemorrhage occurred did the time exceed four and one-half minutes; while in more than 100 of the 500 cases there was a coagulation time of five minutes or greater.

Can we do anything to increase the coagulation of the blood *in vivo*, and so lessen the tendency to hemorrhage? For this purpose various agents have been brought forward which, in certain quarters, especially manufacturing, have been highly recommended, but experience has not generally supported these optimistic claims. Supra-renal gland extract, pituitary gland extract, emetin, thromboplastin, coagulose, are among the agents exploited for this purpose. On the theory that the coagulation of the blood depends upon the concentration of calcium some authors advise its administration in the form of the lactate for several weeks beforehand in case of a

suspected bleeder. But the most recent laboratory test contradicts the claim that dependence can be placed upon this practice.

As it appears, then, that we have neither reliable means for predicting hemorrhage, nor reliable means for preventing it, our efforts must be in the direction of providing measures for control in the event of its unforeseen occurrence.

Some of the agents which have been advocated as valuable, hypodermically administered, for the prevention of hemorrhage, are put up also in a form for local use and advised to be employed in this way to induce clotting and help in overcoming hemorrhage.

Thrombo-plastin is perhaps the best of these, and, applied directly to a bleeding surface, will no doubt have some effect in lessening the general oozing from the surface, but it can naturally be of no value in controlling a vessel that is spurting or bleeding at a lively rate.

This is the criticism that must apply in the case of all local styptics, whether they be in the class of astringents, vaso-constrictors or coagulants.

Dioxygen, antipyrine, gallic and tannic acids, and Monsell's solution are still given a place in the text-books, but have lost standing as a part of the armamentarium of the modern operation room.

Experience shows that they only lessen the general oozing which would in a short time stop spontaneously and they are absolutely useless in a case of serious hemorrhage; moreover, vaso-constrictors are followed by a reaction and the coagulants produce an ugly clot under which concealed bleeding still continues.

Horse-serum, it is thought, has in some cases had a favorable influence in the control of hemorrhage, but it may induce very severe antiphylactic phenomena, and there are some reports of actual fatality from its use.

Of instrumental measures to control hemorrhages from the tonsil, there is much variety in practice and opinion.

There are on the market a dozen or more different models of special hemostats to make constant pressure over the bleeding area. They are so constructed as to be self-retaining, one blade pressing against the tonsil fossa and the other against the outside of the cheek. Besides being exceedingly painful

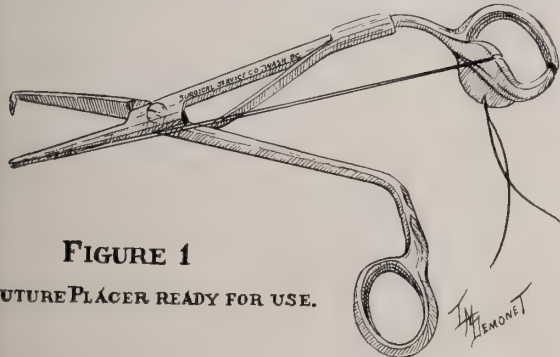
to the patient, they tend to promote sloughing of the parts, which in our estimation are fatal objections to their employment.

Sewing together of the pillars is advised and practised as a proper means to stop hemorrhage that cannot be controlled by simple pressure or use of the hemostatic forceps. This is, in our mind, a very unsurgical way of side-stepping the practice which prevails in all surgery elsewhere, of directly seizing and ligating the particular bleeding vessels, and it is sure to be followed by much unpleasant reaction.

This is all the more true when the fossa is full of a gauze or cotton pack, and the pillars sewed over it.

After all is said and done, the best, safest and most reliable measure is the immediate ligating of the bleeding vessels in the wound. The only objection to its general use is the difficulty in its performance. Special hemostatic forceps have been designed to facilitate the transit of the ligature loop over the point of the instrument, and to aid tying of the thread.

The technical difficulties, however, are never mastered by some operators, and the time consumed in the procedure may be a serious objection. The suture ligature is the best solution of the problem for many operators, though this too is difficult in throats of a certain conformation when the bleeding vessel may be almost inaccessible, as, for example, in the extreme end of the lower pole near the base of the tongue. Besides, there is a possibility of snapping the needle in the throat in an attempt to force it through the tissues.



We have been using with much comfort for a number of months, a special suture placer of our own design, which enables us with entire ease to place a suture in any part of the tonsil fossa we desire. The instrument is so

constructed that as soon as the thread is drawn through the tissues, it become automatically released from one blade of the instrument, while the other end is brought out through the mouth so that it can be readily seized and tied.

The facility with which the suture can be placed without loss of time leaves no excuse for overlooking a bleeding area, and of late we have been in the habit of placing ligatures as a routine at special points, as the best guarantee against post-operative hemorrhage.

When we consider all the discomforts and dangers of hemorrhage, and especially the grave possibility in some instances, we should not hesitate to exercise the most scrupulous care and precaution to avoid it, for certainly over-precaution is well repaid if it means the saving of a single case in a whole life time of practice.

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The Rochambeau.

SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.*

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When I accepted the invitation to present a paper on "Gastric and Duodenal Ulcer" at this meeting, I said that I hesitated about adding to the volumes which have been written on this subject in recent years. The very abundance of this literature probably attests the unsettled state of the subject and I believe the problem of the treatment of these conditions will remain largely unsettled until we know more about their etiology. In the case of gastric ulcer, as someone has said, we seem driven to remove the organ in which the lesion occurs, and this is very much like amputating the leg for varicose veins.

In a recent thorough study of the etiology and pathology of peptic ulcer, Levine reached the following conclusions: (1) Peptic ulcer starts as an erosion; (2) Erosions may be produced by mechanical, chemical or physical causes, circulatory and nervous disturbances, infection, and allergic phenomena; (3) Erosions in the region of the Magenstrasse (gastric pathway) do not heal readily because of its peculiar structure; (4) Erosions are converted in peptic ulcers by the destructive action of the acid gastric juice; (5) The isthmus, pyloric canal, and first portion of the duodenum, because of the resistance they offer to the acid chyme, are particularly liable to be involved in ulcerative processes. These conclusions seem to cover very well the current views concerning the factors possibly involved in the production of these ulcers.

Acute gastric or duodenal ulcers can be produced experimentally in animals with relative ease and by various methods, but they show a great tendency to heal and not to become chronic. Mann and Williamson have, however, been able to produce typical subacute and chronic ulcers in the jejunum of dogs in which they did a "functional resection" of the duodenum, that is, they divided the stomach at the pylorus, closed the end of the duodenum, divided the jejunum and sutured the distal end into the end of the stomach and then anastomosed the proximal end of the jejunum with the lower ileum, thus exposing the jejunum to the acid gastric juice unmixed with the secretions which normally neutralize it. These experiments would seem to prove the

important part which the acid gastric juice plays in the production of gastric and duodenal ulcers.

You are all familiar with the work of Rose now, who has called attention to the role of infection in peptic ulcers. In the light of our present knowledge we insist upon the eradication of foci of infection in the treatment of peptic ulcer; however, I believe that, while infection may cause the initial lesion in some cases, other factors probably account for its becoming chronic.

There has been much discussion regarding the relative value of the medical and the surgical treatment of peptic ulcer. The results of medical treatment in the hands of certain men seem to compare favorably with some of the surgical statistics. This question will probably not be settled until many large series of cases treated by each method are painstakingly studied for many years. I think that any fair-minded person will acknowledge that there is great good in each and that the best interest of the patient demands the close co-operation of the internist and the surgeon. The fact that most surgeons insist upon medical treatment after operation indicates that they have some faith in such treatment, and most of us are disinclined to operate until medical treatment has been given a thorough trial. We would expect better results from medical treatment in the earlier stages of ulcer as the conditions for healing in the old ulcers with dirty, fibrotic base and overhanging edges are not good.

For many years gastro-enterostomy with or without excision of the ulcer has been our chief dependence in the surgical treatment of this condition. In spite of some findings to the contrary, I believe that a well placed and well executed gastro-enterostomy facilitates the emptying of the stomach and diminishes the acidity.

Since the vicious circle has been largely conquered by perfected technique, gastro-jejunal ulcer has become the chief complication of gastro-enterostomy. It was my fortune in 1903 to write the first article in English on jejunal ulcer following gastro-enterostomy. This ulcer occurred in a dog upon which I had performed a gastro-enterostomy several months before, perforation of the ulcer being found at autopsy to be the cause of the animal's death. I was much interested in the specimen and on investigation I found that

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fourteen such ulcers had been reported in the German literature. I did not think at the time that the subject would ever assume the lively interest which it has.

While other factors, such as trauma and infection, may enter into the production of these ulcers, I believe that the acid gastric juice is the chief factor concerned in their production. In my comparatively small series of cases of gastro-enterostomy, I have fortunately had little trouble on this score, possibly to some extent due to the fact that I do not use intestinal clamps.

The best treatment of this complication is probably partial gastrectomy. I have recently seen a case in which I operated two years ago for a gastro-jejuno-colic fistula which had followed a gastro-enterostomy performed elsewhere. In this case I was unable to do a partial gastrectomy owing to numerous adhesions about the pyloric end of the stomach; therefore, I resected the jejunum and made a new gastro-enterostomy. He was perfectly well and happy.

Some authors claim that gastro-enterostomy for gastric or duodenal ulcer does not restore the stomach to a normal physiologic condition, that it is liable to complications, and that it fails to completely cure the patient in a considerable percentage of cases. They, therefore, advocate the doing of some kind of pyloroplastic operation whenever it is at all feasible. The old Heineke-Mikulicz pyloroplasty is seldom done. The Finney pyloroplasty or gastro-pyloroplasty is a valuable operation in selected cases, and in his hands has had a wider range of usefulness. It is chiefly applicable, however, where the gastric and duodenal mobility are good, where perigastritis is absent and where the pylorus is not involved in scar tissue. In 1914 Finney reported 100 cases treated by this method. Five died shortly after operation and seventeen were not traced. Ultimate results were found to be satisfactory in 93.6 per cent of the seventy-eight cases which were examined. Horsley has devised a method of pyloroplasty which perhaps has certain advantages over that of Finney but it seems to me that his method is subject to the same limitations, as noted above.

I think it may be said that surgeons are directing more and more attention to the removal or destruction of the ulcer itself, rather than relying upon gastro-enterostomy or

pyloroplasty alone. This is due to the fact that the latter procedures have been followed in a considerable number of cases by recurrence of the ulcer, by bleeding, and in the case of gastric ulcer by malignant change. In this connection it is interesting to speculate as to why we practically never find cancer developing in a duodenal ulcer.

While realizing that the results obtained by the methods outlined above were far from ideal, we were moderately well satisfied with them until recently. Extensive series of cases have been reported by Balfour, Sherren, Peck and others in which the results were said to be satisfactory in 80 to 90 per cent of the cases; however, in many of the Continental clinics and some American clinics the results were far from satisfactory. Lewisohn, in a study of the cases operated upon at the Mt. Sinai Hospital from 1915 to 1920, found that gastro-enterostomy effected a perfect cure in less than 50 per cent of the cases and there was secondary ulceration in 34 per cent of these cases, whereas the usual incidence of this complication is said to be 2 to 5 per cent.

Many European surgeons are now doing extensive gastrectomies for gastric and duodenal ulcers and their example is being followed by some in this country. The object of this operation is to remove the ulcer and at the same time to reduce the acidity by removing that portion of the stomach which regulates acid production. Mayer, Brams and Graves studied twenty-two cases in which this operation had been done for gastric ulcer and found a total absence of free hydrochloric acid in all of the cases.

Moynihan, Haberer, Finsterer and Pauchet, who are among the chief exponents of partial gastrectomy for ulcer, report an operative mortality of 2 to 3 per cent, which is little more than that of gastro-enterostomy. While this mortality may prevail in the hands of such expert operators, I believe it would be much larger in the average surgical clinic, though I grant that this is not a valid argument against the procedure, provided it is justified on other grounds. It is certainly a very grave, mutilating operation and seems to greatly diminish or even destroy the gastric acidity, and who can now say that this is an inconsiderable matter? In the light of our present knowledge, would it not be better to reserve this very radical operation for cases in which it seems particularly indicated? I

wonder how many of us would like to have this operation done on us for an ordinary duodenal ulcer. I think partial gastrectomy is probably the operation of choice in certain gastric ulcers, particularly the large ones with possible carcinomatous changes.

What procedure shall follow the gastrectomy is largely a question of personal experience and choice. I believe the Polya-Balfour operation will prove the safest and best in the average hands.

Braithwaite has advocated doing a cholecyst-gastrostomy in certain inaccessible ulcers of the stomach, on the ground that the bile thus diverted into the stomach lowers the gastric acidity and promotes healing of the ulcer. He reports eighteen cases treated in this way with gratifying results, but he does not report his cases in detail and does not give the results of gastric analysis before and after the operation. Some years ago Grey studied the effect of cholecyst-gastrostomy on the gastric acidity in dogs and found that the presence of bile in the stomach throughout the course of digestion had no appreciable effect on the acidity of the gastric contents. This procedure in gastric ulcer may be worthy of further investigation.

SOME CONSIDERATIONS PERTAINING TO NASAL PATHOLOGY.*

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For the purposes of this paper, and without any claim to mastery of the subject, nasal pathology is imposed upon certain definite factors the chief of which are: (1) Morbid anatomy and histology; (2) Tissue resistance, local and systemic; (3) Certain bacterial and chemical agents and irritants; (4) Perverted physiology, hygiene and habits.

Associated with the first factor are observed such conditions as septal spurs, ridges and deviations; narrow noses crowding intranasal structures, and hypertrophied and cystic turbinates; growths, including tonsils and adenoids; congenital and post-operative atresias; and foreign bodies. These constitute the usual findings in nose examinations, and give rise to some form or degree of nasal *obstruction* to one or more of the nasal functions, including breathing, drainage and ventilation of the sinuses, phonation and olfaction. Tissue contacts, associated with or produced by

the above mentioned conditions, give rise to intranasal *pressure*, the precursor of irritation, congestion, stasis, and inflammation.

Secondly, considerations of tissue resistance lead us into fascinating fields of study. Advances in immunology have given us more or less definite measures of prevention. Familiar now are the various foreign protein and bacterial tests, including the Schick and the Dick tests, but we of the rank and file of the profession have, probably, not availed ourselves of the means at hand for determining the susceptibility of our patients to infections and sensitizations, particularly as related to those allied diseases known as nasal and bronchial asthma, hay fever and vasomotor rhinitis. The urge to give our patients the best and the most that preventive medicine has to offer should come from an alertness within our own trained minds. We should not wait to be lured into line by enthusiastic and enterprising biological chemists and pharmacists, however efficient and commendable their contributions may be.

Thirdly, the virulency of bacterial organisms found in the nose and accessory sinuses, and the wide distribution of these disease processes by continuity of tissue, through the lymphatics and the blood channels, often with frightful results, have not aroused us to a sufficient recognition of *all* of the sources of such organisms, nor to the various modes of transmission of these agents.

With the great "flu" and similar epidemics we have a loquacious familiarity, but in so far as a comprehensive and thorough-going knowledge and control of the transmission of such and similar diseases are concerned, we must be assured that, as yet, our success has been but partial.

Much has been achieved, but we have not gone far enough in educating the public mind as to the evils of spitting, blowing the nose to the winds, coughing and sneezing. Local governments have not gone far enough with our well-equipped Health Boards in regulating the methods of sweeping our streets and sidewalks, whereby sporiferous and germ-bearing particles are stirred up to a ruthless rampage. The incriminating Petri dish, exposed for a few moments to the air and then incubated, once so awe-inspiring, now fails to elicit much concern.

Do we know more or do we know less of

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transmission? We overlook such sources as house-dust, made infectious by germ-filthy shoes and clothing; infected pockets from contaminated handkerchiefs, which doubtless often re-infect the patient; infected but well advertised swimming-pools which harbor millions of bacteria from infected noses and throats of swimmers, as pointed out by Shore of Des Moines; infected tonsils and adenoids impregnating the saliva and mucus with bacteria and toxins, and carried into the post-nasal and nasal spaces in several ways, chiefly by blowing and sneezing; the eyes, always exposed, and frequently becoming involved in catarrhal and grippal waves, as indicated by redness and smarting of the lids, may be the initial link in the chain of acute respiratory disorders;—these are some, and often unsuspected, sources of infections leading to nasal pathology.

Fourthly, the relation of perverted physiology to nasal pathology is sufficiently apparent not to require discussion here.

Just a word about hygiene and habits. It seems trite and common-place to refer to such things as food, clothing, exercise, elimination, ventilation, and social usages, but the so-called common-place things are the little blocks upon which our theories rest.

The march of civilization brings somewhat which tallies for disease. A certain perverseness of the age strikes the "jazz" trail, and like "Zig-zag" Ike, steers wide of "the ancient landmarks". Gone are the simple modes and manners of our forebears; gone, for instance, is the simple diet of the early days. We split our wheat with patent rollers;—the cows get the food, we get the firmentation and the constipation. Patent processes have striven for delectable dishes until our palates are enticed and over-stimulated, so that masses of the people have become heedless stomach-stokers. Over-eating ranks high as a cause, not only of nasal disorders, but of general diseases as well, and is a serious menace to health because of its apparent innocence, its insidiousness, and its un-get-atable-ness. Gone are the warm-woven garments which protected us from wintry blasts, and have come scant, flimsy fabrics which fashion drapes about our cold extremities and our blood-bleached bodies, and have come, therefore, "colds", coughs, and a distressing increase in the great "white plague". Gone is the warm, radiant hearth,

Nature's best rubifacient for cold, anemic feet and limbs, and have come, to the poor, those nefarious, ill-smelling, oxygen-consuming oil-heaters, and to the rich, weather-stripped, super-heated houses and offices, with downy-cushioned motor cars to convey our flaccid bodies between the two. Gone are the flickering candles that sent us to early retiring after the day's demands had depleted the body forces, and have come the brilliant Mazdas that lure the jaded brain and body far into the night and to delayed rising and delayed body functions. Gone are the days of discretion, especially with the younger folk, and have come the days of excesses in one form or another; as, for instance, hours spent in aquatic sports, subjecting the body to low temperatures for prolonged periods: result, congested and hypertrophied turbinates with concomitant evils. Excessive use of tobacco, the smoke of which is irritating to the mucous lining of the nose, is a present and underestimated evil. Excessive and very prevalent use of the sugars—at least one alcohol beyond the pale of prohibition—is chargeable with many body evils, not the least of which is irritation of the mucous system, often giving a characteristic, raw-ham appearance to the lining membrane of the nose. All these and many other etiological factors, however poetic and fanciful they may sound, have a direct bearing on pathology of the nose.

Some might object that, despite all this, longevity has stretched in the last twenty-five years from forty-five to some fifty-six years;—*yes, despite all this, not because of it*. Were it not for modern medicine holding the bulwarks of Health against the onslaughts of indiscretion, these figures would be down, not up.

Turning now to view nasal pathology from another angle, we desire to note certain symptoms which point thereto.

The symptoms, both subjective and objective, which serve as a directory of nasal pathology, are produced by two main classes of conditions, which, for convenience, may be classified as *non-inflammatory* and *inflammatory*, the latter into *suppurative* and *non-suppurative*. The non-inflammatory findings constitute the obstructions above referred to, or at least some of them.

Nasal obstruction is not a simple matter. The immediate discomforts of nasal obstruc-

tion and tissue contacts are often pathetic, but the greater evils lie in the remote resultants which eclipse the original state.

Do we fully appreciate and weigh the results of interrupted breathing? The mere difficulty of breathing may, and often does, interfere with respiratory rhythm. Snuffling, sneezing, blowing the nose, "catching the breath", un-gear the respiratory "timer". This is carried to a pathetic climax in nursing infants, struggling and scrapping at once for life's two chief essentials, air and food.

Nasal obstruction limits not only the quality of breathing, but the quantity as well. These respiratory derelicts simply try to do with less air. Inhalation, therefore, is fractional, and the thoracic capacities are but partially developed. The respiratory function, from the respiratory center all the way down, must be educated and raised to full capacity. This cannot be done with an obstructed nose.

Mark Twain said, in substance, that he heard a lot of discussion of the weather, but nobody seemed to do anything about it. Considerations of nasal pathology are useless unless they bring relief. It is in this light, therefore, that we consider these symptoms.

Mouth-breathing is a harmful and unnecessary evil. To greet "the incense-breathing morn" with dry lips and mouth, parched and puckery tongue, a desiccated throat and trachea, is, to say the least, robbing Health of one of her great exhilarations.

Then come the characteristic changes in physiognomy—the relaxed lower jaw, relaxed and thickened lips, pinched alae and narrow vestibule, listless eyes, and a dull, heavy, all-over expression.

More devastating than this, and far more serious, is obstruction to drainage and aeration of the accessory sinuses of the nose. Narrow or retracted nasal bones and pinched-in nasal processes of the maxillary bones, high deviations of the nasal septum, hypertrophied and cystic middle and superior turbinates, and hyperplastic or thickened mucosa or supporting structure, with blocking of the ostia and canals of the sinuses, are definite entities, which foster further and more serious pathology.

A blocked sinus is a potentially diseased sinus. It is a pathological "no-man's-land" which may be harassed at any time by bacterial barrages. The oxygen therein is ab-

sorbed, negative pressure ensues, followed by sensitive sinus walls, congestion, stasis, impaired or exfoliated epithelium with loss of function and resistance,—a prepared soil for infections, degenerations and polyp formations.

Here, as elsewhere, Nature turns on the red light signals: The "morning drop" of mucus from a water-logged membrane; morning sneezing from puffy, impacted middle turbinates, made worse by recumbent position of the night; a sense of fullness and heaviness between the eyes, with a desire to blow the nose; tenderness of the globes associated with eye movements, and sometimes slight blurring of vision—"a skim over the eyes"; *headache*, especially the morning type, wearing off by night, and of a fairly definite character—the so-called "vacuum headache" of Sluder. The prevalence of these headaches and the very great importance of this symptom, pointing as it does to an unsuspected, insidious, primary pathological state in the nose, leads me to quote Sluder's words relative to it:

"A low grade, unending headache is established by closure of the frontal sinus, without nasal signs or symptoms, that is, obstruction or secretion, and is made worse by use of the eyes. These patients have ocular symptoms only. The air is partly absorbed in the sinuses and the negative pressure makes the walls sensitive.*

"The floor of the sinus is its thinnest wall and has attached to it the pulley of the superior oblique. The sensitive floor is pulled on by use of the eyes. * * *

"This class of cases never has pus in the nose; never has the severe pain produced by suppurating sinuses; and never is complicated by blindness or changes within the globe. The eye disturbance is of the nature of asthenopia. They are almost always closed frontal sinuses which are otherwise normal. Occasionally it is the anterior ethmoid labyrinth which has become closed. * * * Ewing was the first to recognize these cases and to describe the symptoms, which briefly are: 'Inability to use the eyes for near work because of headache which is produced thereby, and which is not relieved by glasses nor eye treatment'. The headache is frontal, usually: very rarely it is referred to the external angle of the frontal bone. It is frequently

*This idea was advanced by P. McBride in 1891.

present on rising, but grows worse on using the eyes. The pain never reaches the intense degree of that produced by confined empyema, but is quite sufficient to prevent the use of the eyes. Occasionally a patient relates that 'blowing the nose is sometimes accompanied by a squeaking sound and sensation of air running up to the brain', which is followed very soon by temporary relief of the discomfort. I have often had them say, 'I feel something crawling up in my forehead'.

The optometrist throws out a drag-net for this class of patients and fattens on them. When a patient under presbyopic age tells me he has had his glasses changed one or more times, I usually want to see the nose, not the eyes.

There is one condition which closely simulates the above picture. The symptom-parallel is sufficiently interesting to call for a word: I refer to the headache caused by intestinal stasis and auto-toxemia. This may so nearly duplicate the symptom-complex quoted from Sluder that, at times, it is difficult to differentiate the two. Whether this be a separate entity or whether retained toxic solids and liquids aggravate the already present nasal condition, adding, as some one aptly said, "the last straw", I am unable to say. A high enema, unloading the intestinal tract, will clear up one type of these cases, and probably relieve others. Before giving a final verdict incriminating the nose, I usually order thorough elimination by means both of medication and enemas. Parenthetically, and to those of us who operate in the nose, I know of nothing that brings more relief and leaves a more grateful patient than to deplete a post-operative congestion and fullness in the nose than by elevating the head and shoulders, heating the feet and lower limbs, and unloading the large intestines. Try it.

During the past several years in studying and treating these headaches, I have been struck with a decided psychological phase which many of these patients present,—a mental picture which is more marked in the severer types of nasal involvements, but which is also evident in the type under discussion.

A large percentage of these patients when interrogated will give a history of dizziness, mental depression, despondency, impaired memory, absent-mindedness, feeble concentration and co-ordination. They state that in

reading the eyes follow the lines but they cannot repeat what they read. They cannot add a column of figures with certainty of accuracy. These symptoms may be ephemeral. The patient may be "feeling fine", when suddenly these dark clouds will pass over the sensorial sky. Patients with more serious sinus pathology may be morose, non-communicative, hypersensitive, introspective, and hypochondriacal. They usually have narrow faces, narrow interpupillary spaces, narrow noses and narrow nasal fossae.

Pathology incident to *inflammatory* processes, both suppurating and non-suppurating, is manifested in most cases by fairly consistent symptoms and signs. Head and face pains in acute and chronic stages usually indicate either a closed empyema or an involved nerve or ganglion. Acute suppurative frontal sinusitis probably causes the severest pain. Chronic sinuses may cause moderate, non-pulsating pain when the drainage is blocked or inadequate, or when nerve tissue is affected. Sinus infections are often overlooked, because the pain therefrom is often remote and enigmatic. It may be reflected to many points and areas about the face, head and neck.

About three years ago I had a woman some forty years of age referred to me with a supposed mastoiditis on the right side. The whole mastoid process was excessively tender and painful. Even slight pressure caused pain. The external canal walls and the drum membrane did not tally with the symptoms. X-ray of the mastoid discouraged an operation. The nose was examined and the patient again X-rayed. Pus or granulations was reported in the *left antrum* which was irrigated for a period of time. The first irrigations showed pus, and the mastoid symptoms quickly cleared up.

Lyman, of St. Louis, in a paper on "Simulated Mastoiditis Relieved by Sphenoidectomy", cites several cases, in the summary of which he said, in part: "In each of these cases, while the tenderness was very marked over a large area, there was a point of extreme sensitiveness a short distance back of the mastoid process. This tender point is quite constant in nasal ganglion headaches. Operations on the mastoid had failed to relieve the pain. Cocainization of the nasal ganglion afforded practically no relief. Opening the sphenoid and ethmoid sinuses resulted

in marked amelioration of the mastoid symptoms."

Sinus infections, *per se*, are usually not disastrous, but metastatic flare-ups may prove to be so. Complications are less liable in sinusitis, probably because the focus is in tissues always at rest, housed, as the sinuses are, in rigid bone. Just the opposite of this desideratum is observed in apical infections of the teeth, the tooth acting as a plunger to pump bacteria and toxins into conveying channels.

Frequent "colds", purulent otitis media, and even dangerous mastoid infections, especially in children whose tonsils and adenoids have been cleanly removed, may be traced to an unsuspected sinus infection. I recently treated a girl of fourteen years of age, who was anemic, no appetite, underweight, had had some ear pains, and "colds all the time", as the mother stated. The X-ray reported pus or granulations in the antra, which were opened up through the nose and treated. All symptoms showed marked improvement and relief.

F. E. V. Shore, in a splendid paper on "Antrum Infections as an Etiological Factor in Remote Pathological Changes", reports, among others, this case: "Some three years ago while searching for the cause of an acute suppurative otitis media in a lad, on whom a perfect tonsillectomy had been performed some years prior, I decided to wash the antrum, and, much to my surprise, obtained a drachm of pus. This was done every day for three washings with a complete cessation of the aural discharge, although no medication has been made to the ear." Similar citations could be limitless, as I am sure the case files of most nose specialists will testify.

Erosion and absorption of the supporting walls of the sinuses may be a true osteomyelitis and prove very troublesome, or it may admit of rupture and extension into the brain, resulting in meningitis or brain abscess. I have had one case, a young robust man, who, when recovering from an operated mastoid, was smitten with intense headache and supervening loss of consciousness. A Richmond specialist was called in consultation. We explored the mastoid field; he removed some cells which at the time of the operation were very sclerotic and apparently healthy, and which were allowed to remain; we also explored the dura and the brain. These showed no pathology and could not explain the alarm-

ing symptoms. A history had previously been taken of prior sinus infection following several attacks of grippe, or "flu", with headaches, marked depression even to threats of suicide, and nasal discharge. Ewing's sign and other evidences of frontal infection were positive and palpable when making the first examination. An autopsy could not be obtained, but from the nature of the onset and physical findings, the presumption was logical that the brain infection was a metastatic involvement from an old sinus empyema, which, under the stress of a mastoid operation, flared into flame.

The non-suppurating, sometimes called hyperplastic, types are of interest because of one complication which is not at all infrequent,—partial or total blindness which clears up completely, as a rule, if early diagnosis and prompt and efficient treatment are available.

These cases range all the way from "a skim over the eyes," as they express it, to complete loss of vision, particularly of central vision.

A study of the proximity of the canalis opticus to the most posterior ethmoid cell and to the bony wall of the sphenoidal sinus, will suggest the easy possibility of optic nerve infection and a post-optic neuritis. The bony walls here are sometimes papyraceous and, indeed, may present a dehiscence in the cell wall. This possibility is favored by hypertrophied superior and middle turbinates, which more or less obliterate the superior and middle meatus, thus interrupting drainage and aeration of the posterior ethmoid labyrinth and the sphenoidal sinus.

Leon White, of Boston, in studying these ocular cases, was first aroused by the consistency with which he had noted in his records a thickened and impacted middle turbinate, but an otherwise apparently normal nose. In most cases, probably 90 per cent of them, *there was no pus*. This is a very important fact to keep in mind in all nose examinations leading to a diagnosis of ocular and other obscure head symptoms.

14 Marshall Street.

CIRCULATORY ADAPTATION TO MUSCULAR EXERTION.

By C. C. HASKELL, M. D., Richmond, Va.

It is axiomatic that an increase in the activity of the striated muscles calls for an increase in the supply of oxygen to them: indeed, it has

recently been shown that the oxygen absorption of man may rise thirteen-fold as a result of violent muscular exertion. Since it is only through the blood that appreciable amounts of oxygen can be transported to the muscles, it is obvious that a change must take place in the circulation to meet this demand for an increased oxygen supply. The ways in which this adaptation is effected are to be sought chiefly in altered activity of the heart and in the state of the blood vessels; and the coordination manifested between these two factors, as well as with other influences constitutes one of the most beautifully adjusted physiological mechanisms with which we are acquainted. Because of this, an attempt will be made to review the explanations that have been offered for the cardiac and vascular changes that result from increased muscular exertion.

An increase in heart rate accompanying muscular exertion is a matter of common observation; it is obvious that this increase alone, other conditions in the circulation remaining unaltered, would suffice to increase blood flow. Most of us, from subjective experience, are inclined to believe that the force of the individual beats likewise is augmented. Attention will first be directed briefly to the manner in which heart rate is increased in muscular exertion.

As is well known, the heart is supplied with extrinsic nerves which exert quite different influences on this organ: in the vagi are carried inhibitory fibers; in the true sympathetic, the so-called accelerator or augmentor. Certain of the metabolic products of muscular activity tend to cause relaxation of the arterioles; consequently, a fall in arterial pressure would occur from the uncomplicated influence of an increase of these substances, which would result from increased activity of the muscles. The older view was that this reduction of arterial pressure stimulated the endings of the depressor nerve in the left ventricle and aortic arch, setting up an impulse which was transmitted to the inhibitory center, and resulting in a depression of the cells of this center and a consequent acceleration of the heart rate. By an ingenious experiment, Starling has shown, however, that the center is affected directly; a rise of pressure in the vessels of the medulla serving to slow the heart, although there was no rise in the pressure within the ventricle or aorta, and a fall leading to the opposite effect.

Even more effective than a fall of arterial

pressure in bringing about cardiac acceleration is a rise of venous pressure. Here, also, the influence is indirect,—in this case, truly a reflex one. Through undetermined nerve pathways, impulses are transmitted from the right heart to the medulla, where they probably exert an influence chiefly toward depression of the inhibitory center, though a reflex through the sympathetic supply cannot be ruled out. In this connection, it is of interest to observe the influence of “extra-circulatory” factors in bringing about the increased venous flow. The contracting skeletal muscles tend to “milk” the blood heart-wards in the veins, regurgitation being prevented by the valves present in these vessels, while, no less important, is the influence of the increased respiration. Each inspiration, lowering the intrathoracic and raising the intraabdominal pressure, forces the blood through the thin-walled veins toward the heart, thus bringing about an effective rise of venous pressure earlier than could be accomplished by the distant striated muscles.

The nervous mechanism is not alone concerned in cardiac acceleration. The rise of temperature, produced by the increased oxidation taking place in the body, is certainly an effective factor, and it is not unlikely that epinephrine may also be concerned in bringing about this effect.

That an increase merely in the rate of the heart is insufficient to supply the increased need of the contracting muscles for oxygen may readily be shown. Thus, in a reported experiment, to meet a four-fold increase in oxygen consumption, there occurred an increase of pulse rate of only $2\frac{1}{2}$ times. The simplest explanation to account for this difference is that the amplitude of the cardiac contractions is likewise increased,—an explanation in harmony with our subjective experience and one that is now accepted by most physiologists, though the opposite view has been ably defended by Yandell Henderson. While it is difficult to secure positive evidence as to whether or not the stroke volume of the heart is ever increased under normal conditions, the general trend of recent investigation, as illustrated strikingly in the careful experiments of Marshall on the dog, practically convinces one that even moderate muscular exertion definitely increases the amount of blood discharged at each ventricular systole.

Accepting the view that the stroke volume of the heart is adjustable to meet varying de-

mands, one naturally turns to the extrinsic innervation in seeking an explanation as to the manner in which it is brought about, since we have seen the important role played by nervous impulses in effecting changes in cardiac rate. It has been conclusively shown, however, that the chief factor in bringing about alterations in the systolic discharge of the heart lies within that structure itself,—as Starling expresses it: “. . . a heart isolated from the central nervous system and from the rest of the body . . . has a marvelous power of adaptation, i. e., of regulating its activity according to the mechanical demands which are made upon it.” Making use of the heart-lung preparation, in which it is possible to vary the arterial and venous pressures independently and to secure accurate measurements of the ventricular output, the surprising fact has been discovered that an increase in the peripheral resistance amounting to as much as 100 per cent has practically no influence, save of a most temporary nature, on the systolic output of the ventricles; that is, if a heart receive its venous inflow at a constant rate, “it makes no difference to the output of the heart whether the average arterial pressure, and, therefore, the resistance to the outflow of the blood be maintained at 80 or 160 mm. Hg. although, in the latter case, the heart must do exactly twice as much work in order to keep the outflow at the same level.” (Starling.) On the other hand, if the arterial pressure is kept constant and the rate of venous flow is increased, the output at each ventricular contraction almost immediately increases to care for the increased rate of venous flow, and Starling and his co-workers have shown that in this way the minute volume of the heart may be increased ten-fold. This response, they found, was due to a property possessed not only by cardiac but skeletal muscle as well, namely, the power to increase the force of contraction in proportion to the extent to which the fibers are stretched during relaxation. As we have seen, in muscular activity there are several influences at play to accelerate the venous blood-flow; consequently, as a result of this increased flow, the ventricles become more widely distended in diastole and the succeeding contraction increases in force sufficiently to discharge the increased volume of blood within the chamber. Wiggers has recently pointed out that the stretching factor alone is not sufficient to explain the following

increase in power of contraction; the degree of tension developed in the muscle must also be taken into consideration. Obviously, under the conditions existing in the intact animal, an increase in the rate of the venous return to the heart will not only stretch the muscle fiber to a greater length, but will also cause an increase in the degree of diastolic intraventricular tension or pressure. The importance of this influence of increased tension is obvious in connection with cardiac failure: if the diseased heart muscle has lost tonicity to a considerable degree, it may be readily stretched to a length as great or greater than is the case with the normal muscle, but the intraventricular rise in pressure would not be correspondingly increased; consequently, the stimulating influence of the tension factor would be less under this pathological condition of the muscle.

Important as is the role of the heart in effecting circulatory readjustments, that of the vessels is just as essential. Through the vasomotor system, the caliber of arterioles in certain large areas of the body may be quickly and markedly altered, with the result that not only is the peripheral resistance changed, and, consequently, the general arterial pressure, but the distribution of the blood may be very definitely affected. Because of the presence of a well-developed muscular coat of the arteries and the demonstration of the existence of a connection between this contractile tissue and the central nervous system, for years it was felt that through alterations of the caliber of the arteries alone, the vascular readjustments of the circulatory apparatus were chiefly or entirely accomplished. Without doubt, the influence of the arteries is an important one, but of recent years, more and more significance is being attached to the part played by the capillaries.

On account of the minute size of the individual capillary, we often overlook the enormous capacity of the capillary bed. It has been very conservatively estimated that the total cross section area of the capillaries is 400 times greater than that of the aorta. Krogh, from actual counts, concludes that there are no less than 2,000 of these little vessels in an area of a guinea-pig's muscles no larger than that of the average pin on cross section. He estimates that the surface area of the capillaries in a medium sized man reaches the enormous figure of over 6,000 square *meters*; and that a single cubic centimeter of blood in passing through

the capillaries may develop an effective surface area of over 7,000 square centimeters. According to him, if it were possible to dissect out all the capillaries from such an individual and place them end to end, they would stretch around the globe $2\frac{1}{2}$ times. It is obvious that marked changes in many capillaries may lead to most pronounced effects on the circulation. That such alterations in size do occur has been shown by observations carried out on contracting muscle, where it is found that the number of visible capillaries may increase more than four-fold. Interesting observations have been carried out on the living kidney by Richards, from which it appears that the capillaries of this organ manifest contractility to a high degree. According to the older descriptions, the wall of the capillary consists of a single layer of endothelial cells; and it was difficult to conceive of this as representing an effective form of contractile tissue. Vimtrup has re-discovered certain peculiar cells, originally described by Rouget, and attributes to them the power of diminishing or increasing the capillary lumen. These Rouget cells send out long processes, which surround the capillary wall almost as a hand would, and it is readily apparent how a contraction of these processes would diminish the lumen of the vessel.

Sympathetic fibers run in close relation to the capillaries; and experimental proof that stimulation of certain sympathetic trunks will cause constriction of the capillaries in particular regions has been abundantly secured; a dilatation, following section of the sympathetic supply has not been so satisfactorily demonstrated. Burn has discovered that there exists an efferent supply to the capillaries running in the dorsal nerve roots; and he explains the well-known trophic disturbances that may follow section or destruction of sensory nerve fibers as the result of extreme dilatation of the capillaries involved. Apparently, there exists a peripheral nervous structure, by means of which the capillary lumen may be varied, as illustrated in the so-called axon reflex.

It is not only through nerve impulses that the capillaries can be affected; chemical substances influence them also. In the human subject, epinephrine causes constriction; extracts from the pituitary gland were much more effective. Contrary to the usually accepted view, it appears that lack of oxygen is the essential feature in causing a dilatation of the muscle

capillaries during contraction of the muscles rather than the development of "acid metabolites."

Even so far as the investigations have been carried, and those most familiar with them are quickest to proclaim their incomplete nature, it is apparent that a most complicated mechanism exists for regulation of capillary caliber and, consequently, flow. The behavior of these vessels in response to varying needs for blood in the muscles is, obviously, of the utmost importance, as well as the changes which they may undergo in certain pathological states.

In the familiar circulatory readjustment brought about merely as a result of the increased need for oxygen in muscular exertion, it is seen, therefore, that a most complicated mechanism is involved. The increase in the output of blood is brought about through a two-fold change in cardiac activity; in part, depending on the influence of the central nervous system; in part, the result of certain inherent properties of the cardiac muscle. No less complicated is the control of the vessels; here, also, both extrinsic and intrinsic factors are concerned. When we attempt to analyze the circulatory changes brought about in response to even such a commonplace influence as increased muscular activity, one cannot fail to be impressed by the need for perfect coordination between the several factors involved, and we are led to wonder, not why disturbances in the circulation occur as the result of disease, but rather how this function may be satisfactorily carried out over many years.

THE PROBLEM OF ECTOPIC PREGNANCY.*

By GEORGE H. REESE, M. D., Petersburg, Va.

Ectopic pregnancy in its strictest sense means a pregnancy outside of the uterus. From a practical standpoint one is seldom called upon to consider any but the tubal form. This, however, like Cleopatra's charms, presents an "infinite variety" of symptoms and pathology to perplex the mind and tax the resources of either the scientist, or practitioner.

These problems begin with the etiology, and are often manifest throughout the uncertain period of gestation, even when the diagnosis is no longer in doubt, cropping up to sow

*Read before the Southside Virginia Medical Association at City Point, March 8, 1927.

the seeds of discord into any prospective therapy.

Ectopic pregnancy is not confined to human beings. It is also found in many of the lower animals,—the ape, cow, bitch and hare affording examples.

What, then, causes this unusual form of pregnancy? At the very outset we are confronted with a multitude of alleged reasons—all speculative, all probable, and all doubtlessly potent in particular cases.

According to Dr. de Lee first in importance perhaps is "salpingitis, gonorrhoeal or puerperal; second pelvic adhesions; third, infantile tubes with lack of cilia; fourth, wandering of the ovum; fifth, diverticula or accessory tubes; sixth, decidual reaction of the tube; seventh, disease of the corpus luteum."

Salpingitis is thought to act, either by destroying the cilia, or by glueing together the lumen of tube, forming constrictions or blind pouches, by which the ovum is prematurely arrested. Pelvic adhesions also act by kinking or narrowing the tube, and attain the same result. Infantile tubes are much convoluted, are deficient in cilia, and weak in propelling power.

In cases of wandering ovum, it may have grown so large as to be unable to pass the tube.

These are the major speculations regarding the etiology of this disease. As stated above, tubal pregnancy is, from a practical standpoint, the only one to be considered. Ovarian pregnancy has been demonstrated a number of times; but the reported cases are rare in comparison to the tubal form. Primary abdominal pregnancy is to be regarded as improbable.

In whatever part of the tube the ovum locates, the course is largely the same. It either forms a mole, or grows until it results in a tubal or uterine abortion, or ruptures through the tube into the abdominal cavity, or, more rarely, into the broad ligament.

In these cases the fate of the ovum chiefly depends upon the point of rupture, and whether or not the membranes are disrupted by the abortion.

If the membrane remains intact, the ovum may continue to grow, either in the uterus, broad ligament, or abdominal cavity.

When, by tubal abortion or rupture, blood is poured into the abdominal cavity, sooner

or later it clots. It also irritates the peritoneum, causing an outpouring of fibrin, resulting in an early encapsulation of the clot by binding together the surrounding viscera.

Repeated hemorrhages may rupture these new formed adhesions, and the process be repeated until the patient is either relieved, or else dies of shock and hemorrhage. When the rupture occurs into the broad ligament, this structure may be the site of a large hematoma, or, at times, of foetal development.

In tubal abortion the embryo and clots undergo absorption by ferment and leucocytic action, which, as a rule, takes place within a few weeks.

In rupture, if the placenta is detached, or badly disorganized by hemorrhage, the foetus dies; and unless advanced beyond the eighth week, the little body is absorbed just as in tubal abortion, and in either case, without operation, the true condition may never be known. This is perhaps the sequel to many a tubal abortion.

On the other hand, if the child escapes alive, it may continue to grow in its original sac, or in a new sac formed of its surroundings.

After rupture, the placenta spreads from its original attachment, over the adjacent viscera. It is quite like a normal placenta, except that it is unusually thin. The blood vessels near the placenta are greatly dilated and friable, and new ones appear, especially when the omentum comes in to help nourish the placenta.

Again, but rarely, the tube or ovary may not rupture, but continue to expand with the growing ovum, forming a large sac, which adheres to all surrounding structures.

These secondary abdominal pregnancies may go to term, and a spurious labor set in, with a slight hemorrhage and a discharge of the decidua from the uterus. The child may die at this time, or live to a later period.

When left to itself, if the mother does not die of peritonitis, the child undergoes absorption of the soft parts, and later the skeleton may be extruded through a fistulous opening into some adjacent viscera. Otherwise the child may undergo mummification or calcification, and becoming encapsulated, be carried for years. Combined intra- and extra-uterine pregnancy has been frequently reported. Not unknown is double tubal preg-

nancy. Double gestation sacs have been found in one tube, and twins or even triplets in one sac are reported.

The course of ectopic pregnancy from a clinical standpoint is not uneventful. Rarely do the first few weeks or months pass without definite pelvic symptoms. These vary in type and degree almost without limit. There are few pelvic conditions that have not been confused with ectopic pregnancy, ruptured or unruptured, and *vice versa*. It is practically impossible to make a definite diagnosis of tubal pregnancy before rupture, or beginning abortion, and notoriously difficult at times after either of these events has taken place.

The usual history of these cases is a missed period, pain in the lower abdomen, usually on the affected side, faintness, nausea, with the usual symptoms of shock. The decidua may pass from the uterus as a whole, or in part.

Sometimes the effect of tubal rupture is terrific. The pain is sudden and excruciating, and soon spreads all over the abdomen. The patient utterly collapses, with all the evidence of acute shock and hemorrhage.

That a great deal of this prostration is due in many cases to shock alone is often proved at operation, there being not enough blood present to account for the depression on any hemorrhagic basis. The patient is deathly pale, slightly cyanotic about the lips, with a rapid feeble pulse, low blood-pressure, sighing, yawning, or gasping for breath. Later, they complain of thirst, become jaundiced from absorption of disintegrating blood, while the temperature proceeds to mount.

A blood examination often reveals a high polymorphonuclear count, as well as a very high total white cell count. In severe hemorrhage the hemoglobin, of course, is low, and the red cell count is low.

In the writer's opinion, the missed period, unilateral pain with or without uterine hemorrhage, excessive tenderness in the affected side, high white cell count with low hemoglobin, constitute the main diagnostic points in ectopic pregnancy.

Some of the highest white cell counts the writer has ever met with have been in ruptured ectopics; and in none of them was there any visible evidence of suppuration. In my experience the blood count has been higher, the tenderness greater, and the hemoglobin

lower, in the average case of ruptured ectopic, than in the average case of salpingitis—with which it is likely to be confused.

The treatment of ectopic pregnancy, ruptured or unruptured, is operative. In view of all available statistics, the possibility of carrying a secondary abdominal pregnancy to term and of securing a safe delivery of a normal child is too remote for routine procedure.

In certain cases it might be considered and attempted; but it should never be the rule, for, when viable, the majority of these children are deformed and the danger to the mother prohibitive. Nor is it necessary in a rupture to rush the patient into an immediate operation, regardless of shock, or the probability of adding thereto. It is true that about 5 per cent of these cases refuse to rally from their primal shock, and no one can tell what any individual case may do; yet an overwhelming majority do rally, and rally repeatedly, and this unquestioned and amply demonstrated fact should be borne in mind and duly weighed when considering emergency measures. To the writer's mind, there is no more atrocious surgical act than an operation on a patient in a state of acute shock, unless absolutely unavoidable. In these cases the statistics are overwhelmingly against ill considered and precipitate action. Fifty per cent of these cases die when operated on in acute shock. Operate by all means, but do it in such a manner as not to further jeopardize a patient already in a critical state.

As stated above, a great deal of this prostration is due to the pain from peritoneal irritation, caused by the rupture and extravasated blood of limited amount. In such cases the entire picture may be changed by a single injection of morphine, to the great relief of all concerned.

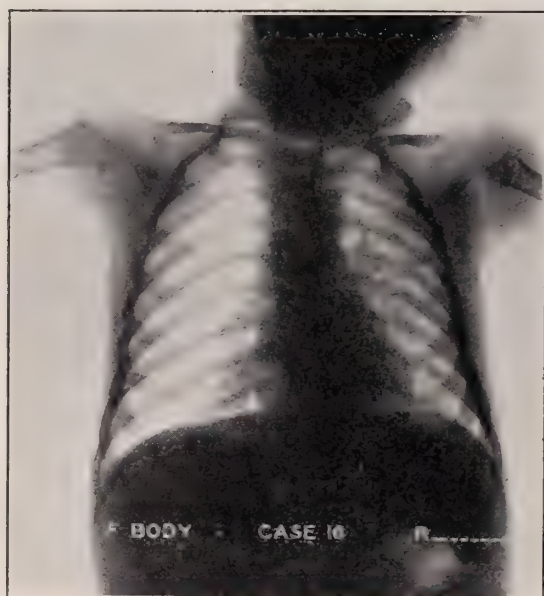
The writer has had in the past four years fifteen of these cases; fourteen of them were ruptures or abortions, several of them having been ruptured for months. In not one of these did there appear more than a moderate amount of prostration when seen by him; but most of them gave the usual history of partial or complete collapse at the outset of rupture. All of these cases were operated upon successfully by the writer, and are a minor testimonial in keeping with the mass of evidence that these cases need not be rushed

through an operation in order to secure a favorable result.

FOREIGN BODIES IN THE AIR AND FOOD PASSAGES—CASE REPORTS

By E. G. GILL, M. D., Roanoke, Va.

CASE 1.—Patient, D. B., female, age two and one-half years, was referred to us March 15, 1927, by Dr. C. B. Bowyer, who gave the history of the case and the X-ray plate showing a metallic substance in the cervical esophagus. The child had been unable to swallow anything except fluids for the past four days. Coughing and gagging had been

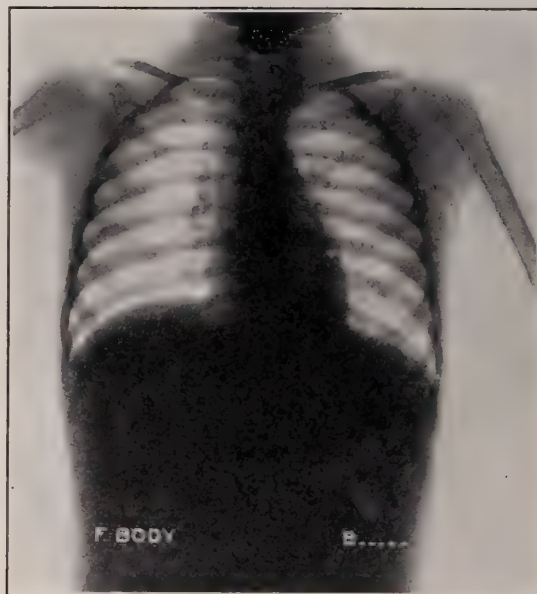


a frequent symptom. The child-size esophageal speculum was introduced and the coin (a nickel) was easily seen just above the cricopharyngeal fold. Alligator rotation forceps were used for extraction. The dysphagia and cough was immediately relieved.

CASE 2.—Patient, T. R., male, age three years, was referred to us by Dr. S. P. Conduff March 14, 1927. History as follows: Five days ago child strangled while eating corn. Has had coughing spells and a "wheezy" sound in throat and chest since the accident. Temperature 100°, pulse 140, respiration 48 on admission. Urinalysis negative except trace of acetone. Blood picture: W. B. C. 6,000; haemoglobin 65 per cent; polynuclears 59; lymphocytes 40.

Physical examination: nose and throat negative. There was limitation of chest ex-

pansion and diminished breath sounds on the right side. X-ray examination of chest did not reveal the presence of a foreign body. The history of foreign body aspiration together with the physical findings were sufficient indication for a bronchoscopic examination. The 5 m.m. bronchoscope was introduced. The mucous membrane of the larynx,



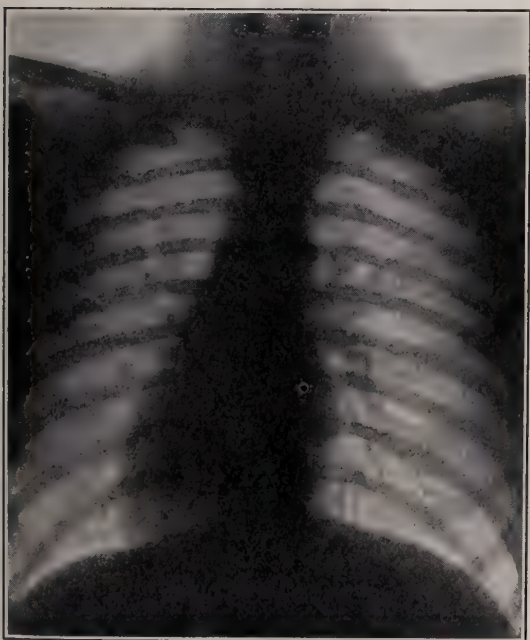
trachea and bronchus was intensely inflamed. A considerable amount of mucopurulent secretion was aspirated. After the removal of the secretions, a portion of a partially masticated grain of corn was seen in the right main bronchus. The corn was removed in four pieces. The following day the patient began to show signs of air hunger—indrawing around the clavicles and intercostal spaces, and restlessness. A tracheotomy relieved this condition. The tube was worn for ten days. During this time a large amount of muco-purulent material was coughed up and aspirated through the tube. Particles of corn were occasionally observed in the secretions. Aspiration of organic foreign bodies, such as grain of corn and peanuts, frequently produce a laryngo-tracheo-bronchitis and a tracheotomy early performed is often a life saving measure.

The radiograph of the chest in this case shows increased density over the entire right side, as the aeration has been cut off by the particle of corn which was impacted in the right main bronchus.

CASE 3.—Patient, age fifteen, female, was referred to us May 30, 1927, by Dr. I. T. Hornbarger. *History* as follows: Patient



swallowed a twenty-five cent piece, May 29th. Patient now has pain on swallowing. *Physical examination*, nose, throat and chest was negative.



X-ray examination shows the coin lying in the esophagus between the third and fourth

interspace anteriorly which corresponds to the fourth thoracic vertebra posteriorly. While the patient was on the X-ray table, a solution composed of 6 c.c. of lipiodol and 6 c.c. of olive oil was given by mouth. The lateral plate shows this mixture sticking to the coin.

Operation: With adult esophageal speculum, coin was located and removed with the alligator rotation forceps. Patient made an uneventful recovery and was discharged from the hospital the following day.

Foreign body, twenty-five cent piece.

Gill Memorial Eye, Ear and Throat Hospital, Department of Bronchoscopy.

PNEUMOCOCCIC PERITONITIS—REPORT OF TWO CASES.

By HERBERT C. JONES, M. D., Petersburg, Va.

Pneumococcic peritonitis is of interest to the pediatrician, internist, surgeon and laboratory worker. With the improvement of laboratory facilities and the development of hospital statistics with regards to the proper records, the incidence of this horrible catastrophe is gradually becoming known. Many cases are now being reported throughout the country and it seems rather appalling that this condition occurs so frequently. Many writers, as late as four or five years ago, questioned the fact that pneumococcus peritonitis occurs as a primary condition, and even now the Bureau of Vital Statistics questions such a diagnosis, because, on two occasions, the writer has been requested to give further information with regard to this diagnosis. Pneumococcus peritonitis may be either primary or secondary. It is classed as primary when no definite focus or portal of entry is known, and it is this type of case to which the writer has special reference.

Primary peritonitis is such an open question with regard to diagnosis and treatment that one is impressed with necessity of the profession reporting all such cases so that the proper methods of diagnosis and treatment may become general. It is only in this way that anything like a standard treatment can be developed, and the incidence of the disease established.

The following two cases are presented, not because of any success in their handling, since both died, but because of several interesting facts brought to mind by their observance.

CASE REPORTS.

Case 1.—Rosella B., age 7, was admitted to the Petersburg Hospital, December 20, 1924, at 6:30 P. M., crying with abdominal pain of 43 hours' duration.

Her *Family History* was as follows: Mother, father and five children living and well.

Past History:—Measles as baby; chicken-pox when one year old. Has been healthy child.

Present Illness, 9 P. M., December 20, 1924:—This child was taken ill at 1 A. M., December 19, 1924, with a violent pain in her abdomen. She had gone to bed and was awakened by severe pain in the pit of her stomach. She was given castor-oil and paregoric by her mother, who said the child would cry out about every half hour with pain. She had vomited everything taken by mouth since she became ill. The pain yesterday was not so severe, the little girl sleeping most of the day. She was given calomel, one-half grain, but did not retain it. The pain was much more severe during last night. The pain has been paroxysmal since onset, and was most severe around the umbilicus. The child had several movements yesterday and today. The stools were green in color and showed no blood. There is no history of a coryza or naso-pharyngitis.

She was seen first an hour before admission to the hospital with all signs of an acute abdomen. Temperature 102, pulse 120.

Physical Examination:—*Heart* very weak; no murmurs; pulse 120.

Lungs.—Increased breath sounds in left back, especially over upper part of lower lobe. However, no rales were heard and there was no impairment.

Abdomen.—Rigid and tender all over, with possibly a little more tenderness over the lower right quadrant. Distention moderate. The general picture of the abdomen obscures the existence of a local condition. However, the appendix is most likely the seat of trouble.

White count—36,000; polys.—86%.

Provisional Diagnosis:—Ruptured appendix with general peritonitis.

The patient was taken to the operating room as soon as she could be prepared. Under ether anesthesia, a right rectus incision was made in the lower abdomen and the peritoneal cavity opened. The abdomen was full of thin white fluid, having no odor. The intestines were very red, but the appendix was normal in ap-

pearance. The intestines were only moderately distended. No diverticula or perforation were noted. There was no evidence to indicate the starting point of the infection. Two hemorrhagic spots were noted on the small gut. The appendix was removed in the usual way and a rubber-dam drain inserted at the lower end of the wound. The wound was closed by through and through silk-worm sutures. A smear made from the fluid showed an encapsulated diplococcus—probably pneumococcus.

12-21-24: Abdomen still very rigid and distended, draining freely. Temperature 104, pulse 140, volume good.

12-22-24: Condition about the same as yesterday—no nausea, distention moderate, temperature 103, pulse 140.

12-23-24: Child somewhat more quiet today. Temperature 105, pulse 140. Wound dressed, drains removed, very little drainage. Several movements today.

12-24-24: Child brighter, very little drainage, no distention, pulse 140, temperature 103.

12-25-24: Wound dressed, no drainage, abdomen slightly distended, slight nausea, temperature and pulse about same. No evidence of collections of pus to be noted.

12-26-24: 9 P. M.—Respirations very rapid, temperature 104, pulse 160, weaker. Marked nausea, very little distention. Specimen of urine was loaded with albumen and all forms of casts. Definitely worse. White count—8,000; polys.—88.

12-27-24: Child died this afternoon. The abdomen was then opened by enlarging the original incision. Findings:—General peritonitis; no evidence of perforation or diverticula. The intestinal tract from the cardiac end of the stomach to the rectum was removed and filled with water, but there was no leakage. Two hemorrhage spots, with no ulceration into the peritoneal cavity or in the lumen of the gut, were noted about one inch apart on a coil of small intestines. It was only after a very careful examination that it was decided to sign the death certificate—"Primary general peritonitis, probably pneumococci in character."

Pathological Report.—Reveals acute appendicitis superimposed on a chronic appendicitis. Acute inflammation seems to have invaded the appendix rather than to have originated in it.

The above case was given the usual perito-

nititis treatment, consisting of fluids under the skin and by bowel. Stimulation when indicated. Morphine for rest. She was also kept in extreme Fowler position.

Case 2—Ruth S., age 6, was admitted to Petersburg Hospital on January 3, 1926, at 5:30 P. M., with temperature 105 and a pulse which could not be counted.

Family History:—Negative.

Past History:—Had measles and chicken-pox when four years old.

Chief Complaint:—Severe pain in the abdomen, with nausea, vomiting, and diarrhoea of 32 hours' duration.

Present History:—This child awoke yesterday morning, January 2, 1926, as well as ever. She went on an errand for her mother eight or ten blocks away and on returning was taken with a severe pain in her abdomen. This pain was most marked in the lower left quadrant. She appeared extremely ill from the onset and vomited many times. She also had many small fluid stools. In one of these there was a little fresh blood. The vomiting was projectile in character. Child grew rapidly worse and within four hours was delirious. She was admitted to the hospital thirty-two hours after onset. Her parents said her temperature was extremely high from onset. There was no history of a cold preceding this illness.

Physical Examination:—Throat showed no redness or evident signs of infection. Tonsils were moderately hypertrophied.

Heart:—Sounds weak, pulse 180, no murmurs.

Lungs:—Negative, no areas of rales, impairment, or increased breath sounds.

Abdomen:—Tense and rigid, touching abdomen at any point caused extreme pain, but it was most marked in the lower left quadrant. No masses were palpable; distention moderate.

Provisional Diagnosis:—General peritonitis, probably due to a ruptured appendix or diverticulum.

The child was immediately taken to the operating room and, under ether anaesthesia, a mid-line incision was made over the lower abdomen and the peritoneal cavity opened. The cavity was found filled with a mucopurulent fluid. Intestines were very red and moderately distended; however, there was no point of ulceration. The pelvis was filled with pus. Both tubes and ovaries were very red. Uterus infantile; duodenum and stomach were

almost normal in appearance. A small hemorrhagic spot about the size of a dime was noted on the coil of small intestines. This spot seemed thicker than the rest of the intestine, but there was no point of perforation. No cause could be found for the general peritonitis present. Smear from pus showed diplococcus, which was probably a pneumococcus. A rubber tube drain was placed through the lower angle of the wound into the pelvis. 300 c.c. of warm saline were left in the abdomen. Closure was made by through and through sutures of silk worm. Patient's condition was possibly a little better than when she went on the table. However, her temperature and pulse rose and the child died five hours after operation.

Autopsy.—This autopsy was made because no cause for the general peritonitis present at the operation was found. Smears of the pus revealed the pneumococcus. The autopsy consisted of simply enlarging the abdominal incision. The stomach and duodenum were nearer normal in appearance than any of the other abdominal contents; more pus and plastic exudate were noted in the pelvis than any other portion of the cavity. The appendix showed only the same inflammation as was revealed by the other contents of the cavity. Ovaries, tubes and appendix were removed for examination; also a small area in the small intestines, which showed a questionable black spot, but no perforation. The esophagus was tied off and the stomach and all intestines removed down to and including the rectum. They were then distended with water, but no leakage was found. This examination revealed no definite portal of entry for the infection.

Pathological Report:—Specimen ovary, appendix, and lumen of the intestine. Ovary infantile; superficial ulceration of the bowel with an acute inflammation of the serous coat of the bowel.

INCIDENCE.

The pneumococcus and hemolytic streptococcus are considered to be the offending organisms in primary peritonitis. Many writers seem to think that coryza or a naso-pharyngitis usually precedes a streptococcus or a pneumococcus peritonitis; others do not think this of any particular significance. One fact seems fairly constant throughout the literature, and that fact is that very rarely does a pneumo-

coccus peritonitis case show any signs of a pneumonia either by X-ray or by physical signs. Rolleston, in 4,400 cases of pneumonia, has only seen a peritoneal involvement in 11 cases and even this incidence seems higher than the experience of many other observers.

Streptococcic and pneumococcic peritonitis usually occur in children from infancy up to seven years. Rarely does the condition exist after the age of seven. In a recent report in the *Journal A. M. A.*, January 9, 1926, by Drs. Lipshutz and Lowenburg, of the Mt. Sinai Hospital, Philadelphia, an excellent resume of this subject was given. Of twenty-three cases reported over a period of three years, every case died in spite of the many procedures instituted in their care. The ages varied from 3 months to 6 years:—3 months, 2; 10 months, 4; 1 year, 6; 2 years, 8; 3 years, 1; 4 years, 1; 6 years, 1. Pneumococcus peritonitis occurs in girls 3-1, while in streptococcus peritonitis the incidence is about equal. This report of 23 cases of primary peritonitis occurring in one hospital in a period of 3 years is appalling and would indicate that possibly this condition exists more often than is generally thought. While this condition probably exists more frequently in children, it does occur in adults. Dr. Leonardo, in the March number of *Annals of Surgery*, reported 3 cases in adults, all of which died.

Assuming that the germ does not primarily involve the peritoneum, its transfer may occur in several ways:

1. *Blood Stream*.—Some consider peritonitis secondary, not to a single focus, but to a bacteremia. In support of this, 9 out of the 23 cases in the Philadelphia report showed positive cultures. Further consideration of the blood stream as a portal of entry will be taken up later.

2. *Lymphatic Route*.—If this is true, it varies with all known facts of pathology. The normal flow of lymph is in a contrary direction.

3. *Genital Tract*.—Pneumococcic peritonitis affects girls in the ratio of 3 to 1. In the Philadelphia reports, 8 of the 9 pneumococcic cases occurred in girls. Gonococcus and tubercular peritonitis are thought to occur in this way. Pneumococci and streptococci are passed through the bowels and a vaginal contamination may occur. The acid vaginosis in women is thought to kill the pneumococcus. Pneumo-

coccus peritonitis does occur more frequently in females. However, it does occur in males in many instances, and this weakens the theory of the genital tract as a portal of entry.

4. *Gastro-Intestinal*.—It is impossible to produce peritonitis by feeding the pneumococcus or the streptococcus through the mouth, unless there is a leakage in the gastro-intestinal tract.

PATHOLOGY

In the early stage, the exudate is limited to the pelvic peritoneum. Later, the inflammatory process spreads rapidly, and in 24 to 72 hours blossoms out into a diffuse purulent peritonitis.

Early the exudate is filmy, and only later it becomes sticky and purulent. Pneumococcic and streptococcic involvement of the peritoneum show practically no tendency to encapsulation. This is one reason drainage is so unsuccessful.

The intestines are red and swollen, but slightly distended.

W. B. C. are usually high, ranging from 25,000 to 40,000, with marked increase in polys.

In reading the literature, the writer was struck with the fact that all the autopsy records (5 in number), described one or more hemorrhagic spots as occurring in the serosa of the small intestine. Although these spots, which are probably infarcts, occur in other forms of peritonitis, it seems possible that they may be the starting point of this type of peritonitis. Certainly they are not seen in every case of peritonitis. The capillaries of the serosa are very small. Bacteria might easily lodge here and either penetrate or filter through into the peritoneal cavity. Also, I am informed that autopsies on pneumonia patients often show these petechial hemorrhages into the serosa of the small intestine. This would indicate that the peritoneum is able to take care of most of these small infarcts. If the process is one of penetration, it should be visible to the eye, either macro- or microscopically.

Autopsy of the second case was interesting because on the mucous surface of small intestine opposite the hemorrhagic spot, which was about the size of a dime; a superficial ulceration was noted. However, there was no evidence of penetration into the peritoneal cavity, and should the pneumococcus have entered in this manner, the process would have

been one of filtration. To the writer, then, it seems there may be two possible portals of entry as an explanation of so-called primary peritonitis,—first, through infarction and then penetration or filtration; second, through superficial ulceration in the bowel and then filtration into the peritoneal cavity.

SYMPTOMS.

The onset is sudden, with high fever. A history of a cold seems obtainable in about 50% of the cases.

Diarrhoea is a constant symptom; however, it may be replaced by constipation.

Vomiting is a most common symptom. It is persistent and may be projectile.

Abdominal rigidity appears early. Pain and tenderness are always present.

The onset of temperature is sudden and remains high.

The evidence of toxicity does not appear early. The children usually are bright until the end.

The diagnosis may be confirmed by a peritoneal puncture. This seems to be a safe procedure. The diagnosis in all 23 of the Philadelphia cases was confirmed by this puncture with no serious difficulties.

The greatest difficulty in diagnosis seems to be in differentiating this form of peritonitis from that produced by a ruptured appendix or diverticulitis. However, the abrupt onset with high temperature, diarrhoea, extremely high leucocyte count, general tenderness and rigidity should be borne in mind, also, appendicitis is rare in infants under two years of age.

TREATMENT.

Early operation seems to be the only method of treatment; at least, practically all the cures have been obtained in this way. Suction of the peritoneal exudate followed by multiple drains seems to offer the most hope. Stab drains in the flanks should be made. Enterostomy will lessen distention and toxicity as a result of absorption of the intestinal contents. Fluids by the skin, vein, and bowel should be given. If enterostomy is done, the patient can take fluids by mouth; otherwise, it will increase distention. Stimulation should be given when indicated, and morphine is very necessary to keep the patient quiet.

Early operation is necessary to establish drainage as soon as possible and also to prevent error in diagnosis, such as perforation, diverticulitis, or a ruptured appendix. Lym-

phocostomy has been tried in vain in most instances. Costain has reported one cure in this manner, but there have been many failures. Mercurochrome, gentian violet, anti-pneumonic, anti-streptococcic serum and the typed pneumonia serums have all been tried and found wanting.

PROGNOSIS.

The prognosis is poor at best. Certain factors, however, must have some influence, such as the virulence of the organism, the time of the operation, and the age of the patient. It is interesting to note the different results obtained by different men; however, one does not have the opportunity of studying out all such cases. All 23 of the Philadelphia cases reported from Mt. Sinai died; also, all of Dr. Leonardo's 3 cases died. Fraser and McCartney reported 42% mortality; Koennuke, 27 cases, 55% mortality; Rischbreth, 88% mortality in a London Hospital, and Rohr's series of 88 cases with 86% cured.

SUMMARY.

1. All cases of so-called primary peritonitis should be reported so that the incidence of the disease and better diagnosis and standards of treatment may be established.

2. Peritoneal puncture is a great aid in diagnosis, and can be done with little chance of harm to the patient.

3. Cultures and smears should be made of all suspicious peritoneal fluids, and facilities for making them should be close at hand every time an abdomen is opened. A better prognosis can be made in this manner.

4. It seems very important to make autopsies in all forms of peritonitis, especially in those cases where the origin of the infection is unknown. It is easy to enlarge a scar and establish facts which might have been overlooked at the time of operation. Our knowledge of so-called primary peritonitis is going to be increased only in this manner.

431 *Washington Street.*

AGRANULOCYTIC ANGINA—WITH REPORT OF A CASE.*

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Mrs. J. A. C., married woman, age 32, was admitted to St. Elizabeth's Hospital at 11:30 A. M., September 18, 1926.

*Read before the Richmond Academy of Medicine, February 22, 1927.

Past History: The patient had had a thorough physical examination six weeks prior to the present illness. Her chief complaints at that time were nervousness, lack of endurance, irritability and menorrhagia. The positive physical findings were pyorrhea alveolaris, evidence of right apical pulmonary fibrosis, retroversion of uterus with second degree prolapse, chronic cystic cervicitis and loss of weight. Laboratory examination showed the following: Blood: hemoglobin 60 per cent; R. B. C. 4,000,000; W. B. C. 3,500; coagulation time normal; Wassermann negative. Urine: 24 hour specimen normal. Stomach contents showed a normal acidity. A general program was outlined to improve the patient's living conditions with especial attention to rest and diet. Blaud pill, gr. x, t.i.d., p.c. and sodium cacodylate gr. v, q.o.d., were prescribed for the anemia. Luminal gr. $\frac{1}{2}$ t.i.d. was given for nervousness. By this treatment she improved symptomatically and had gained six pounds prior to onset of the present illness.

Present Illness: Two days prior to admission to the hospital the patient had complained of general lassitude, chilly sensations and generalized joint pains. The positive findings from a complete physical examination at that time were as follows: Moderate injection of posterior pharynx with tonsils normal, slight fibrosis at right pulmonary apex, pyorrhea alveolaris, and an appearance of secondary anemia. The temperature was 101° F., pulse 100, respirations 20. A tentative diagnosis of influenza was made on the basis of the acute symptoms, and the usual treatment for this disease was instituted. This consisted of rest in bed, forcing fluids, small doses of salicylates and throat gargles. The patient was seen upon the following day when her pulse, temperature and respirations were essentially the same and there were no additional symptoms. Her pharynx showed more congestion with considerable edema of the soft palate and surrounding tissues. A dark grayish ulcer was noticed on the left tonsil. The superficial necrotic area could be wiped away and was not followed by bleeding. At six o'clock the following morning the patient was seen for the third time. She appeared extremely toxic with a pinched expression about the face. The skin and mucous membranes were slightly cyanotic. The only additional subjective symptom was intense pain in the throat, which was not relieved by oral administration of two grains

of codein sulphate. The throat picture was essentially the same, except the edema seemed more marked and an additional ulcer was on the opposite tonsil.

On admission to the hospital six hours later, there was the same toxic appearance, the features were drawn, pupils dilated, and the eyes seemed to protrude with an expression of apprehension. The skin and mucous surfaces were definitely cyanotic. There was no icterus. Objectively, dyspnoea was the most marked sign present. A suggestive inspiratory crow was noted, but she could talk. The throat showed still more generalized hyperemia and edema, and the ulcers had increased in size. The throat was so immobile that she could not gargle. The temperature was 103° F., pulse 118 and slightly irregular, and respirations were 36.

Laboratory examination showed: Blood: hemoglobin 60 per cent; R. B. C. 4,000,000; W. B. C. 160; differential count, large lymphocytes 40 per cent, small lymphocytes 25 per cent, polymorphonuclears 22 per cent, transitionals 2 per cent, eosinophile 2 per cent, basophile 3 per cent, and myelocytes 5 per cent. The blood examination was checked by two internes and the laboratory technician. A smear from the pharynx and tonsils showed many spirochetes and fusiform bacilli, rare long chain streptococci, many staphylococci and many cocci occurring in pairs. A culture was made for diphtheria, which proved negative. Other cultures were examined by the Virginia State Board of Health and reported negative. The blood Wassermann was negative. Blood culture was negative.

Throughout the day the patient received 1,000 c.c. of normal saline by hypodermoclysis and was treated symptomatically with opiates, strophanthin, adrenalin chloride and caffein sodio-benzoate. Forty thousand units of diphtheria antitoxin was administered in two doses. No anaphylaxis followed either injection. Dyspnoea became progressively more marked, but at all times it was possible for the patient to reply to questions distinctly. About 6:45 o'clock in the evening muscle twitching began in the upper extremities and a little later in the lower extremities. Respiration became very difficult, shallower and slower and cyanosis more marked. Twenty minutes later breathing ceased.

A diagnosis of agranulocytic angina was made.

COMMENT

Occurrence: Lovett states that this disease is rare or unrecognized in the United States, and he is accredited with reporting the first case in 1924.¹ Prior to this time a dozen cases had been described in Germany.² So far, only women of middle age have been affected. Since Lovett's report, Skiles,³ Pelnar,⁴ Moore and Wieder⁵ and Lanter⁶ have reported similar cases.

Etiology: No causative factor has been isolated. Lovett suspects the bacillus pyocyaneus.¹ Moore and Wieder found only Vincent's organisms from throat smears. Skiles thinks the mechanism of the production of the condition may be due to either one of two factors: a specific infection resulting in local necrosis with the formation of a specific toxin for the bone marrow, or a primary affection of the bone marrow resulting in an inhibition of the granulocytic formation, due to lowering of the resistance of the patient.

Morbid Anatomy: The main features seem to be ulcerative angina and a great reduction in leukocytes, affecting chiefly the granulocytic series. The onset and course are acute, and the outcome is fatal. The characteristic lesions are dirty, ragged, yellowish, rapidly spreading ulcers, which may occur on the tonsils, pharynx, gums, tongue, larynx and genitalia. In a case reported in Germany by Petri,⁷ typical necrotic lesions were found throughout the gastro-intestinal tract. The most characteristic lesion is in the bone marrow,⁸ which shows an entire absence or greatly diminished number of granulocytes and their precursors, while the lymphoid and red cell elements are slightly if at all reduced.

Symptoms: There is a sudden onset with throat, neck and joint pain, high fever and normal organic findings except for those previously mentioned. Icterus has been reported in some cases. Headache is common. Cardiac disturbances are reported to be rare.

Laboratory Findings: A diagnosis of agranulocytic angina cannot be made without the lowered leukocyte count. The polymorphonuclear element is always greatly reduced. Moore and Wieder's case showed only 5 per cent of the granulocytic series. Bacteriological findings are variable, Vincent's organisms being found in the majority of cases.

Treatment: Nearly all cases have a fatal outcome. Local treatment of the throat seems to be a matter of choice with the attending

physician. Intravenous arsphenamine, tartar emetic and diphtheria antitoxin have been used.

Discussion: In comparing the findings in the case cited above with those in the experience of other observers, several interesting facts are noted. Perhaps the most significant is the patient's white cell count of 3,500 six weeks prior to the fatal illness. From this alone it seems probable that Skiles' supposition that the disease is due to a specific bone marrow deficiency, caused in turn by lowered resistance, contains much truth. It would appear from laboratory findings and the patient's general ill health, with loss of weight, that the disease had been in progress for some time. Possibly this would also offer an explanation for the Moore and Wieder's case which recovered from a primary attack and succumbed to a second attack. It certainly appears that the disease ran a chronic course, even though the patient seemed to improve somewhat prior to the fatal outcome. Another interesting fact is the remarkably low white cell count, which, as far as can be determined, is the lowest on record in the reported cases of this disease.

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THE ROLE OF THE SURGICAL PATHOLOGIST.

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As Director of Laboratories and Surgical Pathologist at Stuart Circle Hospital, I have been asked so frequently the same group of

questions concerning the role of the surgical pathologist and the scope of his function that it has seemed worth while to present these questions in the form of a paper attempting an exposition of this matter, making clear the possibilities of and necessity for surgical pathology in the practice of modern surgery.

Question I.—What, in brief, is the function of the surgical pathologist?

Answer.—To be present at all operations, giving, when required, expert advice concerning gross pathological appearance and suggesting areas suitable for biopsy. When there is a doubt concerning the diagnosis and, therefore, the surgical procedure, to immediately section the frozen fresh tissue and return a microscopic pathological diagnosis in an average time of five minutes. When an immediate report is not required, all specimens from the operating room are examined while fresh and a report given to the surgeon while the patient is under his care.

Question II.—Cannot the surgeon at exploration make an adequate gross diagnosis and proceed on this?

Answer. — MacCarty¹, who has compiled more statistics on this subject than anyone else, says that, in his experience with 150,000 surgical specimens, 42,000 of which were studied in relation to gross diagnosis, he found that gross, positive diagnosis was physically impossible in 18 per cent. The microscope was absolutely essential in this 18 per cent. This percentage of impossible diagnoses varies, of course, with different parts of the body.

If a pathologist of such wide experience as MacCarty fails in gross diagnosis in 18 per cent of cases, certainly the percentage of error would be much higher for surgeons who are not devoting their entire time to gross and microscopic diagnosis of fresh tissue. It would, therefore, appear that surgeons proceeding with an operation on their own gross diagnosis, certainly in this 18 per cent of cases, are faced with two possibilities:

1. An unnecessary radical, or
2. An incomplete operation.

MacCarty also states that 5.7 per cent of all surgical cases at the Mayo Clinic which produce surgical specimens have tissue removed for diagnosis during operation, i. e., 5.7 per cent could not be diagnosed before operation. He also states that 2.65 per cent of all surgical patients who produce surgical

specimens have pathologically incorrect clinical preoperative diagnoses. Of these 2.65 per cent, 60 per cent required a radically different surgical procedure as a result of the microscopic study.

In a series of breast cases at the Mayo Clinic,¹ well trained surgical clinicians who examined these breasts indicated their inability by the usual clinical methods to make positive pathological diagnoses in 21.5 per cent. The microscope was absolutely necessary in this 21.5 per cent. In the remaining breast cases, 4.5 per cent of those diagnosed as malignant turned out to be benign on microscopic study. If, then, upon a clinical diagnosis of supposed malignancy, some surgeon had proceeded with a radical operation, then 5 out of every 100 women would have received radical operations unnecessarily.

A similar study to show percentages in the diagnosis of uterine conditions would, no doubt, be as interesting, for it is often impossible to differentiate clinically malignancy from other conditions, such as polyps, placental remnants, fibromyomas, adenomyomas, sclerosis and para-uterine lesions. If conservative surgeons do not wish to remove the uterus and its appendages unnecessarily they must have a microscopic diagnosis before proceeding. Uterine curettings can be studied by the fresh frozen section method, and when cancer cells are found the surgeon then knows which procedure is best. A negative report in this type of case is not conclusive, however, because of the possibility that the curette has not removed the carcinomatous tissue in small lesions, especially if they are in the fundus or a horn of the uterus.

An old surgical slogan has been, "When in doubt, do a radical". This was permissible twenty-five years ago, but today the surgeon is under moral obligation to his patient to provide adequate means for rapid microscopic diagnosis, so that, the doubt being removed, a radical operation may be limited to those cases where it is indicated. The modern slogan is, "When in doubt, explore and have expert diagnosis on the fresh tissue".

Question III.—What tissues can be sectioned and diagnosed by the fresh tissue method, and how much tissue is needed?

Answer.—Practically all tissues can be sectioned and diagnosed by this method; in fact, all surgical specimens, even bits of tissue as small as 2 millimeters or less (1/25 of an

inch) may be frozen and sectioned in this way. L. B. Wilson²⁻³ described the method of preparation of fresh tissue for study during operations in 1905, using the freezing microtome and a polychrome stain.

Question IV.—Can fresh frozen sections be cut as thin as imbedded sections?

Answer.—For rapid work on fresh tissue, sections are usually cut 10 microns thick. This is the average diameter of most tissue cells. When the cells in fresh tissue are cut in twain, the uncoagulated protoplasm flows out, so that only the intact cells remain. Thus, a well-made section is one layer of cells thick, and surely the embedded sections can offer no improvement over that.

Question V.—How much time is required to prepare and diagnose a tissue by this method?

Answer.—Five minutes is about the average time.

Question VI.—What is the method used to make these frozen sections?

Answer.—As soon as the tissue is removed from the patient, a block is frozen with carbon dioxide gas, a section cut with the microtome and floated in isotonic NaCl solution. The section is then dipped in Terry's modification of Unna's polychrome stain for a period of from ten to twenty seconds. It is then rinsed in isotonic NaCl solution, floated on fresh isotonic NaCl solution, and mounted from this last on a slide. A cover glass is dropped on and the section is ready for microscopic study.

Question VII.—Is there any difference in the microscopic appearance of fresh tissue and fixed tissue?

Answer.—The study of fresh tissue is a specialty in itself and the interpretation of this stain requires considerable experience, but after it is once mastered, it is found to be as satisfactory as the hematoxylin-eosin combination, the differentiations being just as great to the experienced eye. The cells of fresh tissue are quite different structurally from those which have been dead for some time or have been fixed and embedded. Fixing coagulates the protoplasm and of necessity brings about great changes in the cell structure. Therefore, one accustomed to making diagnoses from fixed tissues must have special training before he can interpret a fresh tissue slide. The cells in the fresh tissue are larger; fixing shrinks and distorts the cell. They have perfectly regular outlines, and do not show reticulated cytoplasm and nucleoplasm. This also applies to

malignant cells, and hence they are not seen to be irregular as described in the text-books. Neither does one see the irregular mitotic figures described in the text-books. Malignant cells have a very characteristic and individual appearance in fresh sections. Fixed and embedded sections have their place in learning the characteristic normal histological arrangement of tissues.

Question VIII.—Can permanent sections be made from fresh frozen sections, and how much time does this require?

Answer.—There are three ways in which the tissue can be fixed for permanent sections, depending upon the speed required. The fresh tissue can be sectioned and floated in 4 per cent formalin for one hour, or a small block of tissue can be put in 10 per cent formalin and brought just to the boiling point when it is ready for sectioning, or the block may be put in 10 per cent formalin and left for twenty-four hours when it is likewise ready for sectioning. Sections from fixed tissue are cut 5 microns thick and floated in distilled water. This tissue is then put on a slide and flooded with 95 per cent alcohol for a few seconds, then fixed on the slide with thin celloidin. It is then run through the stains, alcohols, carbo-xylol and xylol and the cover glass fixed on with balsam. This requires from fifteen to twenty minutes and many slides can be carried through at one time. These slides keep well for years, at least as long as the paraffin slides. Dr. A. H. Schade, in discussing Dr. Turley's paper⁴, states that he has a frozen section slide in perfect condition, which was made thirty years ago.

Question IX.—What is the advantage of the fresh or fixed frozen tissue examination?

Answer.—By the above fresh or fixed frozen tissue method the gross and microscopic work is finished the day or the next day after the operation, and the surgeon has a complete report while the case is still under his care, not days, weeks or months later. The surgeon should have his microscopic diagnosis at a time when it will be of the greatest assistance in the treatment of the patient. To explore, remove some tissue, sew up the patient and send him back to his room to await a delayed diagnosis is quite inexcusable at this time. In malignant diseases, there is real danger of hastened dissemination of a tumor from which a specimen has been removed unless operation immediately follows the biopsy. The routine

fresh frozen section enables the surgeon to complete all operations at the first session. Since we are educating the public concerning cancer, the advice of the surgeon is sought earlier, small lesions are presented, borderline chronic irritative processes which are just becoming malignant. An accurate diagnosis by gross appearance cannot always be made, a biopsy is necessary and time is valuable.

Question X.—How does the surgical pathologist know when he takes a block of tissue for rapid sectioning, that it is from the malignant part, if there is malignancy, or from the part that will give the most information?

Answer.—His ability to do this is, of course, directly in proportion to his ability as a tissue pathologist. He is trained to pick out grossly the suspicious parts with a great degree of accuracy. If he could not accomplish this with the fresh specimen, how could he hope to accomplish it with the fixed specimen for paraffin or other kinds of work? The surgical pathologist becomes the better able to pick out suspicious areas the more often his judgment is checked by subsequent microscopic study, so that the more sections he makes the more able he becomes to choose his blocks. In making rapid frozen sections more than one block of tissue is cut and studied; often four or five blocks are cut from different areas of one specimen before an opinion is given. Often the selection of the pathological tissue is left to the surgeon. He performs a biopsy and sends the tissue to the laboratory. Then the pathologist is not under the necessity of exercising his judgment for gross diagnosis, but makes only the section and the microscopic diagnosis. In this case the pathologist's positive diagnosis is final, but the value of his negative report must be judged in terms of the surgeon's own accuracy in selecting the sample of tissue on which the pathologist's report has been made.

Question XI.—How much detail should be used in writing the pathological report?

Answer.—I have adopted the Mayo Clinic method of making reports, cultivating simplicity, brevity and accuracy, avoiding useless descriptive and confusing terms. I often hear it said that pathological reports should be written out in great detail, that a complete histological and pathological word picture should be presented to the surgeon, but for routine and surgical pathological reports this seems quite antiquated. The first aim of the

present day pathologist should be to simplify as much as possible; to bring order out of existing chaos.

It is deplorable that we have so many terms for one condition, and feel that we must annex to these so many qualifying terms. For example, if a gland removed for examination is found to be inflammatory, that is all that needs be said. Of what value is it to the surgeon to know that the blood vessels are dilated or that the germinal centers are enlarged? The word "inflammatory" determines the surgeon's procedure. Of course, if the pathologist, during examination finds an unusual, rare or new condition, it is his duty to report it in detail, but I am discussing routine work.

Recently, a surgeon was given a report—"Fibro-adenocarcinoma of the breast". He asked what type of carcinoma this was, and if it should be considered as malignant as an adeno-carcinoma or a medullary carcinoma. He also asked what prognosis he could give the patient. If he had received the report "Carcinoma, Grade 1," he would have known all there was to be known pathologically and clinically concerning the condition; he would have known that the prognosis was very good with the proper treatment.

Most surgeons are familiar with Broders¹⁶ grading of tumors. To quote from this recent paper, "The time is not far distant when not only physicians, but also the patients and their relatives, as well as life insurance companies will be interested in the grade of malignancy of cancer. If a surgeon knows the grade of malignancy of a cancer in addition to its size and situation, he is certainly in a better position to render more efficient treatment and a more accurate prognosis than one without such knowledge."

It is a waste of time to report "adeno-carcinoma," "scirrhous carcinoma", or "carcinoma simplex" of the breast, because, on sectioning the whole growth, one can usually find all represented. They are all carcinoma. The same is true in the case of fibro-adenoma. What difference can it possibly make to the surgeon whether it is "peri-canalicular", or if it is an "intra-canalicular fibro-adenoma", although I have known surgeons to insist on this point being made clear. Both types can usually be found in the same adenoma.

It is well known that there is no satisfactory classification of tumors so far devised, but to my mind, MacCarty's⁶⁻⁷ is the most

simple, practical and free from flaws. The surgeon waiting in the operating room is interested primarily in one diagnosis,—“Is it malignant or not?”, or, more briefly, “What is it?” If the report is “Malignant, Grade 1, 2, 3, or 4,” then the surgeon’s operative procedure will be of a certain character. If it is non-malignant tuberculous, syphilitic, inflammatory, etc., then the surgeon will proceed in another manner. There is no time for lengthy reports. Every minute counts when the patient is under an anesthetic.

CONCLUSIONS

1. It is the function of the surgical pathologist to render immediate service to the surgeon, so that he may proceed with the fullest knowledge concerning the condition.

2. It has been shown that in a high per cent of cases, surgeons cannot safely proceed on their own gross diagnosis.

3. Fresh and fixed frozen sections are easily and quickly made, and are as satisfactory as sections made by any other method.

4. It is of importance that all specimens removed at operations should be subjected to a careful routine microscopic examination. This should be done at the time of operation, and can be accomplished quickly and efficiently only by the frozen section method. In this way, unsuspected malignant conditions are often picked up, with consequent difference in the prognosis and treatment.

5. The surgical profession, as a whole, should be familiar with Broders’ grading of tumors, so that they may be able to interpret their own pathological reports.

6. Pathological reports should be made with the greatest simplicity, accuracy and brevity possible. The science of pathology should be simplified, cleared of innumerable synonyms, meaningless adjectives, and brought out of its present chaos.

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ACUTE MASTOIDITIS.*

By SAMUEL M. COTTRELL, M. D., Richmond, Va.

In studying the subject which I shall endeavor to discuss this evening, one cannot help but be impressed with two phases of the disease. I refer, in the first instance, to the causative factor; and, secondly, to the very grave complications with which we are sometimes confronted.

It is common knowledge that practically all acute mastoids have their origin in acute middle ears. Going one step farther, we all know that acute middle ears get their start in life from the thing that everybody knows all about (and seldom ever does anything for), namely, the common cold, or, in some instances, just the plain old runny nose.

Consider briefly the anatomy. First, we have the wide-open naso-pharynx with its acutely inflamed mucosa. Opening into this and at a point particularly prone to trauma and infection, we find the pharyngeal orifice of the Eustachian tube; at the other end of this little canal, the length of which varies from $\frac{3}{4}$ of an inch to $1\frac{3}{4}$ inches, depending on the age and type of skull, we find the tympanic cavity or middle ear. Just posterior and slightly above the middle ear spaces and in direct relation to it, we find the mastoid antrum.

The mastoid antrum and middle ear could easily be looked upon as one cavity, inasmuch as they communicate directly through a sizable opening—the *aditus ad antrum*. Almost completely surrounding the antrum and in very close relation to the tympanic cavity, we find the mastoid cells. So long as these cells remain free from infection, the condition is not regarded as a serious one, but requires careful watching. Once these cells are invaded, we are brought face to face with serious possibilities and surgical measures must often be resorted to.

Going a little farther into the anatomy of this region, there are several structures which

*Read before the East End Medical Society, Richmond, Va.

should be given due consideration, and a minute knowledge of their anatomy should be had by the aural surgeon. First, we have within the cranial cavity, passing downward over the inner surface of the mastoid, the lateral or sigmoid sinus; second, the bony fallopian canal, which courses the inner tympanic wall, thence downward just beneath the aditus along the anterior surface of the mastoid and out through the stylo-mastoid foramen. This canal gives passage to the seventh or facial nerve. Third, forming the roof of the tympanum and mastoid antrum, we have an exceedingly thin plate of bone which also forms the floor of the middle fossae of the skull, a very dangerous relation. Fourth, internal to the middle ear and situated in the very dense petrous bone, we find the labyrinth or organ of hearing.

In view of the above relations one can readily see what havoc might be wrought by the common cold which invades the middle ear and mastoid cells if complications should develop. That is, we may be on the lookout for thrombosis of the lateral sinus, seventh nerve paralysis, meningitis, or brain abscess and acute labyrinthitis which often invades the intra-cranial structures.

With the exception of seventh nerve paralysis, the mortality rate in any of the other conditions is exceedingly high, and should serve as a reminder to both layman and physician that the acute coryza is deserving of more consideration.

A word as to pathology. There are three stages. In the first stage of acute mastoiditis we may find only a marked congestion of the membranes lining the cell walls. In the second, the individual cells are filled with pus but there is no breaking down of the intra-cellular spaces. In the third, there is marked bone softening and total or partial destruction of the net work of the intra-cellular spaces. It is in this stage (particularly in children) that we find perforations through the mastoid cortex and the formation of subperiosteal abscess with its characteristic deformity, in which the periosteum is lifted, causing the ear to set off from the head and have the appearance of being pushed forward or downward depending on the location of the perforation. In these cases the post-auricular fold is obliterated. It occasionally happens that the inner surface of the mas-

toid tip perforates and pus burrows down the neck under the sterno-mastoid muscles. The swelling usually has the shape of a banana with its upper extremity beginning about the mastoid tip. This condition is known as Bezold's abscess and necessitates drainage of the neck as well as the mastoid.

SYMPTOMS

The symptoms of acute mastoiditis are almost always engrafted upon those of acute otitis media. In this connection, Kerrison tells us that mastoiditis without some previous inflammatory process in the middle ear is so extremely rare that it is looked upon as a curiosity rather than a clinical entity.

Pain.—There is usually one-sided headache with shooting pain which radiates from the mastoid region. This pain is often described as being deep-seated and of a boring character. The patient has an anxious facial expression and is inclined to be restless, nervous and unable to sleep.

Temperature as a rule does not run high, usually hanging between a hundred and a hundred and two, or elevation of temperature may be practically absent.

There is usually an increased cell count.

Quantitative change in the middle ear discharge, that is, if a running ear after two or three weeks of profuse drainage shows no signs of decrease in the amount of discharge, it is strong evidence that the mastoid is involved. A very dangerous condition arises when we have a sudden cessation of the ear discharge accompanied by a flare-up of mastoid symptoms, such as pain, tenderness, etc. A situation of this kind calls for immediate surgical intervention. Sagging of the posterior-superior canal wall is of value, but in the absence of other symptoms is unreliable. Associated with this, there is usually bulging of the posterior-superior quadrant of the tympanic membrane.

Mastoid tenderness is the most reliable of all. There are usually three points: First, immediately over the mastoid antrum, or a point just posterior to the canal; next, the mastoid tip, usually the most tender point; third, along the posterior mastoid border at the point of exit of the mastoid emissary vein.

Post-auricular edema is a valuable sign. The formation of subperiosteal abscess following middle ear disease is looked upon as proof-positive that the mastoid is involved.

Mastoid tenderness may be confused with furunculosis of the canal, but, by bearing in mind a few facts concerning the furuncle, they are easily differentiated. Any movement of the auricle causes sharp pain in furunculosis; it causes no pain in mastoiditis. Pressure in front of the ear causes pain in furunculosis, but causes little or none in mastoiditis. Deep pressure over the mastoid, provided you do not touch the auricle or canal wall, causes no pain in furunculosis but causes excruciating pain in mastoiditis. Lastly, the canal is swollen in furunculosis but rarely so in mastoiditis.

In very young children and infants mastoiditis is rare, due to the fact that the mastoid cells are not developed in early life. The antrum, however, is present and it sometimes happens that there is a necrosis of the antral wall followed by post-auricular swelling and sub-periosteal abscess. When this happens, the same treatment as that of a suppurating mastoid is indicated.

PROGNOSIS

If the patient is seen before complications have developed, and proper treatment promptly instituted, the prognosis is good.

TREATMENT

Much can be done in the way of prophylaxis. Rest in bed with early incision of the drum is most essential. Proper attention to the nasopharynx in the way of astringent sprays and local applications of silver salts should be used. The alimentary canal should be emptied and only light easily digested foods taken.

Following myringotomy, hot bichloride irrigations should be started and used from every two to four hours, depending on the amount of discharge. Ice cap to the mastoid should be used in the early stages, but is contra-indicated after pus formation has taken place, inasmuch as it favors bony necrosis and only harm can result. Too much palliative treatment in mastoiditis is an exceedingly dangerous thing, and cannot be too strongly condemned.

According to Kerrison, the indications for opening the mastoid are as follows:

1. The development during acute mastoid disease of auricular displacement as a result of post-auricular edema or sub-periosteal ab-

scence,—furunculosis being eliminated as the causative factor.

2. The development during acute purulent otitis media of labyrinthine irritation which manifests itself by vertigo, nystagmus, etc.

3. Marked tenderness on pressure extending well beyond the limits of the antrum and showing no improvement after incision of the drum.

4. Marked variation in the middle ear discharge, its maximum flow being too great to be accounted for by the tympanic lesion, and its periods of diminution being accompanied by development of mastoid pain and tenderness.

5. Mastoid symptoms having been present and having disappeared, a discharge from the tympanic vault which resists all rational non-operative measures, by reason of its persistence, justifies opening the mastoid.

6. Finally, evidence of mastoid disease having been present, at any time during convalescence that symptoms develop of septic absorption, manifested by chills, sweats, fever, etc., other diseases being eliminated, immediate operation is demanded.

CASE REPORTS

Case 1.—Child, age 3, seen April 21, 1926, in consultation with Dr. Whitmore, who had already made a diagnosis of acute mastoiditis, and had advised operation.

History as follows: Left ear discharged for three weeks following an attack of ear-ache, but there had been considerable improvement until four days ago, although the discharge continued. At that time there was a decrease in the flow of pus, accompanied by rise of temperature, considerable pain and restlessness; since then the child has been acutely sick. The patient has a septic appearance; he is restless and fretful and resists efforts to examine him. The ear canal is smeared in pus and is inflamed from the continuous discharge. There is marked edema over the mastoid bone and the post-auricular fold is partly obliterated. He is extremely tender over the entire mastoid. We advised removal of patient to hospital, which was done.

On admission to hospital, rectal temperature 102.8; pulse 110; resp. 25; leucocytes 13,600; polys. 86 per cent; lymphs. 14.

Urinalysis: sp. gr. 1.028, with trace of albumin and a few hyaline casts.

This child was operated upon the same night and a very bad mastoid found, there being extensive bony necrosis with marked destruction of the cell walls. Convalescence for the first three days rather stormy, after which things straightened out and he left the hospital within a week after operation.

Case 2.—Master A., age 12, referred by Dr. Blair February 11, 1926.

History as follows: Ten days ago this boy had a mild earache of rather short duration, which was followed shortly afterwards with a slight swelling in the region of the mastoid tip. This swelling has gradually increased in size until it is at this time the size of a turkey egg and extends well down on the side of the neck. On palpation it is tense, with little or no fluctuation, and very tender. He holds his head tilted well over to the affected side and the neck is very stiff.

The drum has a leathery appearance but there is no perforation or aural discharge. There is a question as to whether we are dealing with a perforated mastoid or cervical abscess, and X-ray of the mastoid was advised. X-ray report by Dr. Hodges as follows:

"The right mastoid is clear throughout. The left shows that there has been breaking down of the bony net work. I could make this out in spite of the fact that the swelling over the mastoid made it, of course, more difficult. I feel that this is a surgical case."

On admission to the hospital, temperature 99.6; pulse 110; resp. 25; leucocytes 12,600; polys. 82 per cent; lymphs. 17 per cent; large mononuclears 1 per cent; haemoglobin 80 per cent.

At operation, immediately the periosteum is gone through, there is a gush of pus from the wound which appears to be under pressure. The tip of the mastoid has a large perforation about the size of the end of the little finger. There is considerable bony necrosis and the abscess cavity extends well down into the neck, necessitating a lower incision with drainage tube. This boy had an uneventful recovery until the tenth day when his temperature went to 102, pulse 100; eleventh day—temp. 103.2, pulse 120, with considerable cough. The throat at this time is very red and a few Koplik's spots are seen. Twelfth day—temp. 104.2, pulse 134, resp. 35. The same afternoon we were much gratified by

finding a few bumps which proved to be measles. Aside from this later ailment, he made a nice recovery.

Case 3.—Mr. C., age 23.

History as follows: Partially deaf in right ear since childhood; there has been from time to time a slight discharge, the odor of which is very offensive. Occasionally has earache on this side, with some dizziness and vertigo.

He has had numerous attacks of tonsillitis, one within the past few days. Two days ago the ear became quite painful and he has been unable to sleep or get relief by any of the usual remedies which he had used on previous occasions. There is no appetite and he feels quite sick. He is extremely tender over the antrum and tip of the right mastoid, and there is some edema.

Ear canal filled with foul smelling pus and there is almost total destruction of the tympanic membrane. Within the middle ear there is a cottony substance which is very difficult to remove. Temperature normal; leucocytes 9,600; polys. 69 per cent; urine negative.

A diagnosis was made of acute mastoiditis engrafted upon a chronic suppurating ear with cholesteatoma.

X-ray report by Dr. Flanagan as follows: "Radiographic examination of the mastoids shows the right cloudy, the cells posterior to the sinus being filled with either granulations or pus. The area between the tegmen, posterior canal wall and the sinus is dense. There is an area about 1 cm. in diameter in the region of the antrum which shows a circular area of increased illumination with a center that is opaque. The left mastoid is large and clear. The cells are of a mixed type."

The above indicates chronic right mastoiditis with findings suggestive of cholesteatoma. The Wassermann was taken and found to be negative.

This man had a modified radical operation. The mastoid cortex was found to be exceedingly hard (a condition following chronic suppuration). There was extensive cell destruction with a large cholesteatoma filling the antrum and middle ear. Convalescence uneventful. Hearing improved, and ear completely dry within six weeks.

209 Medical Arts Building.

PERFORATED GASTRIC AND DUODENAL ULCERS—A STUDY OF TWENTY-SEVEN CASES.*

By HARRY M. HAYTER, M. D., Roanoke, Va.

The recent return of two patients who were complaining of symptoms referable to the stomach or duodenum, and who had been operated upon previously for perforated gastric ulcers, suggested the idea that a study of our perforated gastric and duodenal ulcer cases might reveal a few points of interest and of value.

It is not my purpose to enter into an academic discussion of the symptoms, diagnosis, and surgical treatment of perforated ulcers, but merely to review briefly a series of twenty-seven cases which have been seen at the Jefferson Hospital in Roanoke Va. These patients were brought into the hospital presenting the clinical picture of the so-called acute surgical abdomen, which picture is familiar to you all.

Hospital statistics indicate that peptic ulcer occurs more frequently in the female than in the male sex. Surgical statistics, however, would indicate that the reverse of this statement is true. In this series of cases there were twenty-three men and four women.

The age of the patients varied from nineteen to seventy-one years. Of the four cases seen in women, two were between thirty-five and forty years of age, and two were between fifty and sixty. Of the twenty-three cases occurring in the male, there were eight between the ages of nineteen and thirty years, four between thirty-one and forty, seven between forty-one and sixty, four over sixty years of age.

In considering the duration of symptoms referable to the stomach or duodenum, an interesting observation was made in this series of cases. The exact duration of symptoms, as taken from case histories, must be more or less inaccurate, due to the different types of individuals and their attitude towards bodily discomfort, for that which would be considered as extremely annoying symptoms by some would be given no thought and considered of no consequence by others. In this series eight cases gave a history of having had symptoms for less than six months. The remaining nineteen had had symptoms for more than four years. This question might arise: Do those peptic ulcers which perforate, either do so in a comparatively short period of time, or

become the site for the battle between the destruction and repair of tissue which is continued over a period of years with the destructive factor eventually winning the victory?

In this series perforated gastric ulcer occurred more frequently than perforated duodenal ulcer. There were twenty-one ulcers of the stomach, two of which were located on the posterior wall and nineteen on the anterior wall. Six of the ulcers were in the duodenum, one of which was on the posterior wall and five were on the anterior wall.

Of the twenty-seven cases, twenty-two were acute perforations twenty of which had a generalized peritonitis, and two having perforated the posterior wall, had given rise to abscess formation in the lesser peritoneal cavity, with rupture of the abscess into the right pleural cavity. Five of the cases were chronic perforations with the omentum or other adjacent structure adherent to the area involved by the ulcer and sealing off the point of perforation.

Trying to find an immediate cause of the perforation is unsatisfactory. It seems that in the majority the structure becomes so weakened at the site of the ulcer that it is unable to continue its normal physiological function and perforation takes place, as in only one case was there a definite history of strenuous muscular effort at the time of perforation.

In spite of the serious nature and acuteness of the condition, there is a general impression that the acute perforated ulcers respond well to proper surgical treatment. This in our experience has been true only in those patients of such an age that a reasonable power of resistance might be expected, and in those cases in which there has been prompt surgical intervention.

A study of the mortality in this series of cases emphasizes the importance of early recognition and treatment of the condition. So frequently a delay in diagnosis and difficulties of transportation, such as are experienced in outlying districts, have rendered the case one unfit for any surgical procedure by the time it reaches the hospital. Quite frequently the question arises, does shock justify delay of operation? In our opinion it does not, for by the time the patient reaches the hospital further delay only decreases the chances for recovery.

Of the twenty-seven cases, eleven died and sixteen recovered. A study of the fatal cases only emphasizes points mentioned above. Two

*Read before the Southside Virginia Medical Association, at City Point, Va., March 8, 1927.

of these eleven cases were moribund and died shortly after admission to the hospital without being operated upon. Autopsy revealed a perforated gastric ulcer in one and a perforated duodenal ulcer in the other.

Four of this group of fatal cases were admitted in a semi-comatose condition with subnormal temperature and a rapid thready pulse. Two of these four were operated upon under a local anesthetic with closure of the perforation in both cases, and doing a posterior gastro-enterostomy in one. Both cases died two days after operation. In the other two the peritoneal cavity was opened and drained as the point of perforation was not readily accessible, the perforation in one occurring high up on the cardiac end of the stomach. These two patients died within twelve hours following the operation.

Three of the fatal cases were in patients above sixty-six years of age. In each case there was a general peritonitis, one of which had been present for three days; however, none of this group had a leukocyte count above eight thousand. Two of these patients had perforated gastric ulcers. In these two patients the perforation was closed, as their condition would not warrant further surgical procedure. The third patient of this group had developed a gastro-colic fistula which had perforated into the peritoneal cavity. In this case the peritoneal cavity was drained because of colon bacillus infection. All three died within four days after operation.

Each of the two remaining fatal cases presents an unusually interesting picture. One, a woman fifty-four years of age, with symptoms extending over a period of five years, was operated upon for a duodenal ulcer. The ulcer was found and a posterior gastro-enterostomy performed. She had an uneventful post-operative course for twelve days, following which she developed acute abdominal symptoms. An exploratory laparotomy revealed a chronic perforation of the duodenal ulcer with obstruction of the gastro-enterostomy. The obstruction was released; however, the patient died two months later with symptoms of intestinal obstruction.

The other case was that of a man fifty-five years old. He had a perforated ulcer on the posterior wall of the stomach with abscess formation in the lesser peritoneal cavity. The abscess had ruptured into the right pleural cavity. This patient had a rib resection and

drainage of the pleural cavity and drainage of the abdominal abscess. He did well immediately after operation; later, however, he developed gangrene of the base of the right lung and died forty-seven days after operation.

Of the sixteen cases who recovered, there were six in whom the perforation had been present for less than eight hours, six in whom it had been present between twelve and twenty-four hours, and four in whom it had been present longer than twenty-four hours. The average leukocyte count in this group was sixteen thousand. The temperature and pulse rate were moderately increased. In only one case was the temperature as high as 101.

In six of these sixteen cases the perforation was closed and a posterior gastro-enterostomy performed, as the location of the ulcer was either on or so near to the pylorus that it might produce an obstruction at this point. All of these patients, five of whom were operated upon over three years ago, are well and free from symptoms.

In two of the cases the ulcer was far enough above the pylorus to permit excision of the ulcer and closure. These two patients have given no further history of symptoms, although seven years have elapsed since their operation.

Two cases had ulcers which had perforated the posterior wall of the stomach with abscess formation in the lesser peritoneal cavity, one of the abscesses having broken through into the right pleural cavity. These patients made an uneventful recovery following drainage of the abscess cavities.

There were six cases in which the perforation was closed and no further surgical procedure undertaken because it seemed unnecessary in three cases, and in the remaining three the patient's condition would not warrant it. The three cases in which the ulcer was far enough away from the pylorus so that suture of the perforation would not cause an obstruction have remained well and free from symptoms for over two years. The three in which the ulcer was located on or very near to the pylorus have continued to have symptoms, and two of these three patients have recently returned for a gastro-enterostomy.

While it is dangerous to draw conclusions from a short series of cases, nevertheless, judging by the results obtained in this series of cases and by the experience of others who have

discussed this subject, we feel that the method of choice in treating perforated ulcers located in the duodenum, and on or near to the pylorus, is to close the perforation and then do a posterior gastro-enterostomy if the patient's condition will permit this procedure. Frequently the question is asked if one is justified in doing a gastro-enterostomy in the presence of a peritonitis which naturally follows the perforation of an ulcer. This procedure is justifiable because of the relatively small number of pathogenic bacteria found in the stomach and duodenum, and to the fact that a considerable part of the inflammation is chemical rather than bacterial in origin. Of course, the longer the duration of the peritonitis, the greater is the chance of invasion by bacteria from the lower part of the intestinal tract.

In those cases in which the ulcer was located higher up on the stomach wall, good results have been obtained by excision of the ulcer and closure of the stomach wall.

TYPHOID THYROIDITIS—A CASE REPORT.

By
I. A. BIGGER, M. D.,
and
W. E. SCRIBNER, M. D.,
University of Virginia.

Only seventeen cases of typhoid thyroiditis are found reported in the literature; this seems to justify an individual case report.

Mrs. R. G., white, aged forty years, was admitted to the University of Virginia Hospital on October 4, 1926, complaining of swelling and soreness of the throat.

Family History.—Father, mother and one brother have thyroid enlargement. A nephew living in her house had typhoid fever at the time of her admission.

Past History.—The patient has noticed an enlargement of the thyroid gland for a number of years but without other symptoms.

Present Illness.—Six weeks before admission to the Hospital, she became ill and was diagnosed as having typhoid fever. Five days later her neck began to swell, and eating or talking was painful. With increasing swelling she became hoarse.

Physical examination showed a rather poorly developed and under-nourished white woman, 35-40 years of age, apparently quite ill. There was a red fluctuant swelling over the right lobe of the thyroid gland with induration surrounding it. The general physical examina-

tion was otherwise essentially negative. The temperature was 102.2°, pulse rate 140 per minute, respiration 28 per minute. Laboratory findings: White blood cells 11,000, red blood cells 3,700,000, hemoglobin 46 per cent (Dare). Differential count: Polymorphonuclear leucocytes 46 per cent, small lymphocytes 41 per cent, large mononuclears 5 per cent, eosinophiles 4 per cent, basophiles 2 per cent, transitionals 2 per cent. Wassermann negative. Blood pressure 100/50. Widal weakly positive for bacillus typhosus, and paratyphosus A. and B. The blood culture was negative on October 4th and again on October 18th.

A transverse incision was made over the fluctuant area and about one-half ounce of thick pus evacuated from the right lobe of the thyroid gland. Cultures from this pus showed the bacillus typhosus. Cultures from the urine, stools, and bile were negative for typhoid bacilli. The basal metabolic rate after recovery was plus 14 per cent.

ARSENICAL DERMATITIS FOLLOWING THE USE OF NEOARSPHENAMINE AND SIMILAR PRODUCTS BY DIFFERENT MANUFACTURERS.*

By EDGAR W. YOUNG, M. D. Petersburg, Va.

CASE 1. Man, aged 49, four plus Wassermann and syphilitic gumma left ankle, was given six injections, at weekly intervals, of 0.6 gram neoarsphenamine and developed facial edema, facial erythema, and a generalized erythematous rash. Was given 1 gram of sodium thiosulphate in 10 c.c. of distilled water intravenously. In forty-eight hours there was marked improvement, and 0.5 gram was given daily for ten days. Patient cleared up entirely.

CASE 2. Hemorrhagic scarlatinal rash. Man, aged 23, with chancre of six weeks' duration, according to his history, showed four plus Wassermann. Received four 0.6 gram arsenamine, and developed high fever, nausea, vomiting, general pains and erythema of upper chest. Was given 1 gram of sodium thiosulphate in 10 c.c. distilled water intravenously. In forty-eight hours marked improvement. Same continued daily for ten days. Then 0.5 gram every other day for ten days. Patient cleared up entirely.

CASE 3. Man, 45 years old, with persistent four plus Wassermann after very extensive

*Cases reported before the Southside Virginia Medical Association, at City Point, Va., March 3, 1927.

treatment for three years with arsenic preparations and mercury intramuscularly, by mouth and by inunctions. Had not had any treatment for one year, and returned with this persistent four plus Wassermann and every manifestation of syphilis of the nervous system; was given six treatments of 0.6 gram nearsphenamine. Came in three days after sixth treatment with lichenoid eruption limited to forearms, hands, feet, and back of neck, with very intense itching. Was given 1 gram sodium thiosulphate in 10 c.c. distilled water for five days before any improvement; then 1 gram every other day for thirty days, and patient was apparently cured, the Wassermann proving negative.

CASE 4. Negro woman, 24 years old, four plus Wassermann. Three hours after third treatment with 0.6 gram of nearsphenamine, she developed edema of face, hands and feet, with an intense itching rash. Pains over body in general with nausea and vomiting. Was given at once 1.5 grams of sodium thiosulphate with relief of nausea, vomiting and pain, and edema disappeared entirely in three days. This patient had only six daily doses of 1 gram of sodium thiosulphate, then 0.5 gram every other day for ten days. Patient apparently cured.

All of these cases were put on milk diet and given free bowel elimination.

Sodium Thiosulphate.—Given intravenously, this preparation is absolutely non-toxic up to 2 grams. McBride and Dennie, in the experiments performed in their laboratories, found that sodium thiosulphate, re-crystallized and of high purity, is tolerated intravenously by lower animals in very high doses. White rats tolerated as much as 4 grams per kilo of body weight.

Technic of administration is the same as that of nearsphenamine — concentrated method. The intravenous route holds the foremost place, and gives the best results; but, if introduction by vein is impossible, I. C. Sutton recommends oral or rectal administration. As a rule, these routes are poor substitutes, and he recommends intravenous route wherever possible.

Dixie Building.

ON RETIREMENT.

By I. S. STONE, M. D., Washington, D. C.
Honorary Fellow, Medical Society of Virginia.

After fifty years of medical practice, thirty-six of which were devoted to a specialty, it seemed fitting that I should retire from my hospital connections and my teaching position in order to care for my health and to seek a measure of rest and relief from responsibility. Since I have had a few years of experience in this carefree (?) life, some of my friends have asked me how I spend my time. What do you find to do? These questions are asked by those who are tentatively considering the plunge.

Without attempting to write an autobiography, or rather without being tempted to write an autobiography, I feel disposed to tell something of myself, not that there is much of interest to many, but largely because so little has been said by physicians upon this one subject.

One must take stock of his acquirements and an inventory of his mental equipment, if he wishes to meet new and untried conditions after he is no longer obliged to work for, and at the call of, the profession which has become a part of his life and soul. Therefore, one will almost certainly have need to take up and perhaps confine himself largely to some unfinished task, or else try to complete some interesting studies which he has never found time to complete or enjoy. In an individual or personal scrutiny of one's self, one will find what use he can make of his time. If one is fond of books, and especially of good books, while busy with his practice, he need have no fear as to how he will spend his time when he retires. *Per contra*. It would be difficult for one to while many hours away without *ennui*.

My personal method has been to take up the study of certain authors; my fad has been the reading of standard French writers of fiction, history and philosophy. Anatole France has entertained me so long that I know his vocabulary quite well, and this enables me to read him more rapidly. I am now old enough to read him *unexpurgatedly*.

But one must not fail to mention other pleasures, such as one's out of door enjoyments. For many years I have spent from one to three months of Summer in the country or in travel. Our country home (bungalow and one acre) provides much real happiness. It amuses me to be asked, "how much of a farm

have you?" As I wanted to play, I would not like to attempt farming. The bungalow is at least five hundred yards from the nearest house and there is a large tract of wild uncultivated, partly wooded land adjoining. Here we have every opportunity for nature studies, especially of bird life, for we have them in great numbers, and of many varieties. Perhaps I am more fortunate than many in my choice of location of the Summer home, for we have intimate and congenial friends not far away where there is always abundant social and literary interest.

I have never taken up golf, although there is yet a possibility of it. In its place, "cow-boy pool" furnishes plenty of fun and a good deal of exercise. Another fad, if I may so call it, is my little work shop. (I have always liked to "tinker"). I have never known anything to kill time like this passion for work with tools, especially when one thinks he is really mending something, or doing something worth while.

Besides these comparatively minor occupations, one must not fail to continue his medical reading, so that he can enjoy the Medical Society and keep in touch with the work being done by his successors. He naturally wishes to watch for any innovations or additions to the stock equipment of his own generation, and I for one will take much pleasure in observing the improvements—the real advances—along all lines, including the preventive measures which should lessen the necessity for a large part of the work which it has been one's life work to perform.

In conclusion, I will refer to the retirement of the specialist, as I mentioned my having been one for many years. It may be quite possible for the family physician, especially if his practice is in the country, to ignore all reference to retirement, but to specialists in cities connected with medical schools and hospitals the subject is assuming and developing large proportions. The question requires further study which may eventually solve certain problems connected with retirement and provision for employment thereafter. Of this I hope to speak in a subsequent paper.

1618 Rhode Island Avenue, Northwest.

"It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy."—Lorimer.

A RAPID QUANTITATIVE ESTIMATION OF SUGAR IN URINES.

By THEODORE J. F. MITSCHKE, Danville, Va.
Director of City Health Department Laboratory.

MATERIALS NEEDED

- Bunsen burner, or alcohol flame.
- Thin walled test-tube.
- Wassermann pipette.
- Benedict's quantitative solution—(given below).
- 5 c.c. pipette.

METHOD OF MAKING TESTS

1. Measure five (5) c.c. of the reagent into the test-tube and bring to boiling point.
2. Add 500th c.c. of the suspected urine, and bring to boil. Repeat the addition of 500th c.c. of urine and boiling after each addition until the reagent is completely reduced.
3. The sugar percentage content can be determined by the following table:

AMOUNT OF URINE ADDED	PERCENTAGE OF CARBOHYDRATES
0.05	20.
0.1	10.
0.15	6.66
0.2	5.
0.25	4.
0.3	3.33
0.35	2.85
0.4	2.5
0.45	2.22
0.5	2.
0.55	1.81
0.6	1.66
0.65	1.1
0.7	1.42
0.75	1.33
0.8	1.25
0.85	1.17
0.9	1.05
1.0	1.
1.05	0.95
1.1	0.9
1.15	0.86
1.2	0.83
1.25	0.8
1.3	0.76
1.35	0.74
1.4	0.71
1.45	0.69
1.5	0.66
1.55	0.64
1.6	0.62
1.65	0.6
1.7	0.58
1.75	0.57
1.8	0.55
1.85	0.54
1.9	0.52
1.95	0.51
2.	0.5
2.05	0.48
2.1	0.47
2.15	0.46
2.2	0.45

2.25	-----	0.44
2.3	-----	0.43
2.35	-----	0.42
2.4	-----	0.415
2.45	-----	0.41
2.5	-----	0.4
2.55	-----	0.39
2.6	-----	0.38
2.65	-----	0.375
2.7	-----	0.37
2.75	-----	0.36
2.8	-----	0.35
2.85	-----	0.345
2.9	-----	0.34
2.95	-----	0.335
3.	-----	0.33
3.1	-----	0.32
3.2	-----	0.31
3.3	-----	0.30
3.4	-----	0.29
3.5	-----	0.28
3.6	-----	0.275
3.7	-----	0.27
3.8	-----	0.265
3.9	-----	0.255
4.0	-----	0.25
4.1	-----	0.24
4.2	-----	0.235
4.3	-----	0.23
4.4	-----	0.22
4.5	-----	0.216
4.6	-----	0.213
4.7	-----	0.21
4.8	-----	0.206
4.9	-----	0.203
5.	-----	0.2
5.2	-----	0.19
5.4	-----	0.18
5.6	-----	0.175
5.8	-----	0.17
6.	-----	0.16

FORMULA OF BENEDICT'S QUANTITATIVE COPPER SOLUTION.*

Copper Sulphate, anhydrous	11.5	grams
Sodium or potassium citrate	200.	grams
Sodium carbonate, anhydrous	100.	grams
Potassium thiocyanate	1.25	grams
Potassium ferrocyanide (5% solution)	5.	ml. or c.c.
Distilled water to make	1000.	ml. or c.c.

1. Dissolve the carbonate, citrate and thiocyanate in enough water to make about 800 c.c. with aid of heat.

2. Dissolve the copper sulphate in about 100 c.c. of water.

3. Pour the copper solution in the alkali very slowly.

4. Add the ferrocyanide.

5. Cool and make up to 1,000 c.c.

*5 ml. or c.c. of this reagent is reduced by 0.01 gram of glucose.

Correspondence

Report of Vaccination Against Smallpox in Madison County.

Madison, Va.,
June 7, 1927.

TO THE EDITOR:

In April of this year the physicians of Madison County, following closely the recommendations of the Virginia State Board of Health, as made in a demonstration by Dr. Grant, State Epidemiologist and assisted by Mrs. Cauthorne, our County Nurse, vaccinated against smallpox 1,189 children of school age.

The object of this report is to call attention to the procedure and to the rather unusual percentage of "takes". Twenty pupils of the total number had been vaccinated within a period of two years. In these, being already immune, there were no "takes". Of the 1,164 there were only 8 failures (5 of whom were members of the same family), giving a percentage of 99 1/3 per cent. The points that we consider most important in vaccination are:

(1) The care of the vaccine. The virus we used came directly from the refrigerator in Richmond, was transported to Madison in a short time and was immediately transferred to another refrigerator and kept there until almost the very hour at which it was used.

(2) The method of vaccination. We used the "Leake" or Multiple Pressure method. This method is described in a leaflet sent out by the State Board of Health. We find this method far better than any we had previously used: quickly done, almost entirely free of pain and the virus may be wiped off immediately with sterile cotton swabs.

(3) In the preparation of the arm we used acetone, or grain alcohol on sterile cotton swabs and allowed plenty of time for it to evaporate, so that there would be no danger of killing the virus. The children were instructed to keep their arms dry and to use no shield, or any other sort of appliance.

We were greatly pleased with the splendid co-operation on the part of the doctors, the nurse, the children and parents. We met with practically no opposition to vaccination. The results were gratifying, in that there were no particularly bad arms, the great majority of the pupils suffering practically no inconvenience.

We believe, if the recommendations of

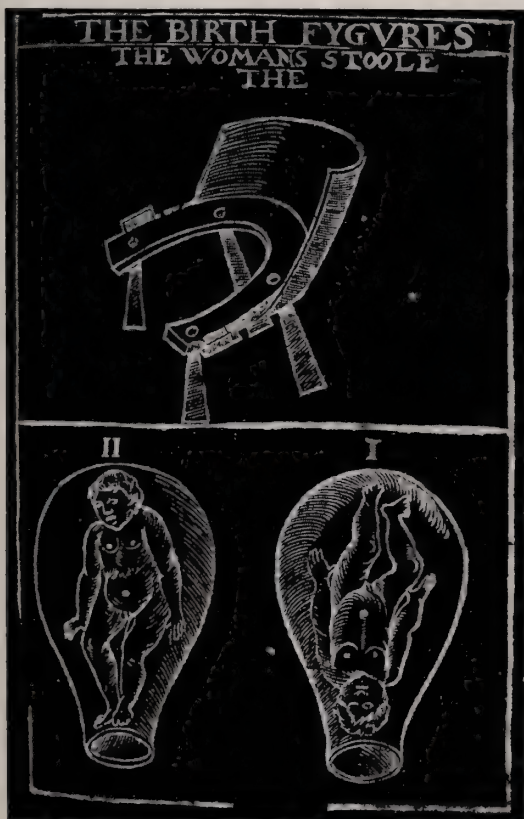
the Virginia State Board of Health were faithfully carried out, that whatever opposition there may be to vaccination would soon disappear.

J. N. CLORE, M. D., Sec'y.
Madison County Board of Health.

Bibliotheca Obstetrica

Thomas Raynalde.

Raynalde (Thomas) [flor. 1540-51]. The byrth of mankynde, otherwise named the woman's booke. Newly set furth, corrected and augmented, whose contents ye maye rede in the table of the booke, and most playnly



in the prologue. 22 p. 1, 148 1, 6 pl. 12°. London T. Ray, 1545. Black letter.

The same. 20 p.l., cxlix pp. 12°. London, T. Ray, 1552. Black letter.

The same, set feorth in English by Thomas Raynalde, phisitian, and by him corrected and augmented. 3 p. 1., 204 pp. sm. 4°. London, T. Adams, 1613. Black letter.

For Biography, see Dict. Biog. London, 1896, xvii, 347 (W. A. Shaw).

One of the very early treatises on obstetrics is Roslin's Rosegarten for pregnant women. (1513). It is interesting because it fixes and preserves the obstetric tradition that came down through the middle ages from the ancients, especialy Soranus. For more than 100 years it was the popular work on obstetrics. It was translated into English and published under the title of The Byrth of Mankind by *Thomas Raynalde*. In it are depicted the presentations of the infant in a flask-shaped uterus which were copied from manuscript to manuscript for centuries. These "Byrth Fygvres" represent the ancient concept of the relation of the fetus to the uterus that pertained until the drawings of Leonardo da Vinci and William Hunter. The cuts shown are taken from the 1613 edition in the Army Medical Library. The obstetric stool was in general use from Pharoah's time until the 17th century. Mauriceau, the first man midwife, started the practice of confining women in bed.

Very little is known about the author or rather the translator. His second book printed in Venice, 1551, deals with the benefits of a certain oil called the Imperial oil, against innumerable diseases. Thomas Raynalde, or Rainold, is sometimes confused with a printer of the same name who was well known in London between 1541 and 1555. W. A. Shaw (Dict. Nat. Biog.) thinks that the printer and the physician were not one and the same, but were probably kinsmen.

Analyses, Selections, Etc.

Irradiation of Vesical Neoplasms by Removable Platinum Radon Seeds: Description of New Instruments Designed to Facilitate their Employment.

An improved method of treating neoplasms of the bladder by means of Removable Platinum Radon Seeds is described in this article by Joseph Muir.

Using the Removable Platinum Radon Seed it is possible to obtain scientific accuracy of the dosage delivered. Radiation is directed not only to the growth itself, but to the tissue surrounding it, in order to catch the mitotic cell. The placement of the radioactive units is made so that the "zones of potential tissue change" from each source do not overlap. The "zone of potential tissue change", or the amount of

tissue that one seed can take care of when implanted alone and also when two or three centers are used so that intervening cells are subjected to cross firing, is described. The theoretical expose has been proved by clinical results.

Using the Removable Platinum Radon Seed not only are we able to deliver accurate dosage, but because of the platinum screenage all caustic rays are eliminated and necrosis and sloughing with intense shock to the patient obviated. The fact that Platinum Radon Seeds are easily removed through the cystoscope after the required amount of radiation has been delivered makes this the method of choice since no foreign body is left in tissue after treatment.

The technic of application is fully described and illustrated. A point of great importance in using the Removable Platinum Radon Seeds is that after the first seed has been implanted through the cystoscope, its thread protruding from the portal of entry of the seed in tissue serves as a landmark and guide for the placement of successive seeds, so that the accuracy of placement of seeds through the cystoscope is greatly increased. Also, should a seed be incorrectly implanted, it may be removed and reimplanted.

In view of the highly simplified technic as described, the treatment of vesical neoplasms by implantation of Removable Platinum Radon Seeds can be accomplished with as much scientific accuracy as any other urologic procedure. (*Jour. Urology*, January, 1927, XVII p. 53).

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Why I am a Member of the Auxiliary.

The question has been asked so often—"What is this Auxiliary? What is it for?"

Then follows the remark, "I already belong to so many societies I do not wish to join another."

The women who are already members have

caught the vision and see a great future for the Auxiliary, but to those who are not yet members, and we want you all to be with us, I would like to say, "I belong to the Auxiliary—Because—"

I believe that my husband's profession is one of the finest in the world; almost the greatest work a man can do.

His profession not only uses all of its knowledge and power to cure disease, but goes farther and does what no other profession will do, that is work against its own interests in order to help humanity. By that I mean preventive medicine.

I believe that my husband is one of the finest men in his profession and I wish to back him in this work to which he gives his life.

I also belong to many other organizations, but I believe that first I should center my interests and energies on the work which is nearest my home and my heart because my position as a doctor's wife surrounds me with opportunities for investigation of the health question and an understanding of that problem which perhaps others may not have.

I have discovered that through the Auxiliary I may become the friend of any doctor's wife not only of my State but of my country and thus enrich my life.

And finally I believe in and am a member of the Woman's Auxiliary to the A. M. A. because I accept the following statement that, "each succeeding generation of the race is the beneficiary of the care bestowed by the womanhood of the generation before it."

"And I wish to carry on."

If you believe these statements to be true, will you not lend your strength to this movement by joining your State and County Auxiliaries and by attending their meetings?

MRS. F. P. GENGEBACH.

Retiring President.

Womans' Auxiliary to the American Medical Association.

Every member of the Auxiliary should read the address of President Calvin Coolidge before the annual session of the American Medical Association, in Washington, on May 17, 1927. It is published in the June number of "*Hygeia*."

Our State President, Mrs. Southgate Leigh,

of Norfolk, was an invited guest at the meeting of the Woman's Auxiliary to the West Virginia State Medical Association in June. She extended greetings from our State and told of the Washington meeting.

Mrs. Gengenbach's address, given above, should be an incentive to the wives and daughters of all our members to join the Virginia Auxiliary. Our 1926 report showed only 315 members.

Attend local medical meetings with your husbands, get acquainted with the wives of the other doctors, and by the time you decide to organize, constructive work will suggest itself to you.

Insist upon your husband attending the meetings and taking you with him.

The Truth About Medicine

In addition to the articles enumerated in our letter of April 20th, the following have been accepted:

Abbott Laboratories
Neonal
Certified Laboratory Products
Ethylene—C. L. P.
Cutter Laboratory
Alkali Weed Pollen Extract—Cutter
All Scale Pollen Extract—Cutter
Box Elder Pollen Extract—Cutter
Burning Bush Pollen Extract—Cutter
Corn Pollen Extract—Cutter
Foxtail Pollen Extract—Cutter
Mountain Cedar Pollen Extract—Cutter
Tumbleweed Pollen Extract—Cutter
Western Water Hemp Pollen Extract—Cutter
Fairchild Bros. & Foster
B. Acidophilus Milk—Fairchild
Horlick's Malted Milk Corporation
Horlick's Maltose-Dextrin Milk Modifier
H. K. Mulford Co.
Lamb's Quarters Pollen Extract (Glycero-Saline)—Mulford
Ragweed Pollen Extract (Glycero-Saline)—Mulford
Timothy Pollen Extract (Glycero-Saline)—Mulford
Wormwood Pollen Extract (Glycero-Saline)—Mulford
Parke, Davis & Co.
Alfalfa Pollen Protein Extract Diagnostic—P. D. & Co.
Kidney Bean Protein Extract—P. D. & Co.
Typhoid Vaccine (Prophylactic)
Typhoid-Paratyphoid Vaccine (Prophylactic)
E. R. Squibb & Sons
Ovarian Hormone—Squibb
Swan-Myers Co.
Ampoules Ephedrine Hydrochloride—Swan-Myers, 0.05 Gm., 1 c.c.
Capsules Ephedrine Hydrochloride—Swan-Myers, 0.025 Gm.
Solution Ephedrine Hydrochloride—Swan-Myers, 3%.

NEW AND NON-OFFICIAL REMEDIES

Ephedrine Hydrochloride—Abbott.—This product (The Journal, A. M. A., March 19, 1927, p. 925), is also supplied in the form of Tablet Triturates
Ephedrine Hydrochloride—Abbott, $\frac{1}{2}$ grain, Capsules Ephedrine Hydrochloride—Abbott, $\frac{3}{4}$ grain and Ephedrine Hydrochloride Solution—Abbott, 3 per cent, Abbott Laboratories, North Chicago, Ill. (Jour. A. M. A., April 16, 1927, p. 1235).

Glaseptic Ampoules Mercury Salicylate—P. D. & Co., 0.065 Gm. (1 grain).—Each cc. contains mercuric salicylate (New and Non-official Remedies, 1926, p. 247) 0.065 Gm.; apothesine, 0.01 Gm.; in olive oil, 1 cc. Parke, Davis & Co., Detroit.

Glaseptic Ampoules Mercury Salicylate—P. D. & Co., 0.13 Gm. (2 grains).—Each cc. contains mercuric salicylate (New and Non-official Remedies, 1926, p. 247) 0.13 Gm.; apothesine, 0.01 Gm.; in olive oil, 1 cc. Parke, Davis & Co., Detroit.

Glaseptic Ampoules Mercury Succinimide—P. D. & Co., 0.01 Gm. ($\frac{1}{6}$ grain).—Each cc. contains mercuric succinimide.—N. N. R. (New and Non-official Remedies, 1926, p. 248), 0.01 gm., apothesine, 0.005 Gm.; in physiological solution of sodium chloride, 1 cc. Parke, Davis & Co., Detroit. (Jour. A. M. A., April 30, 1927, p. 1398).

Viking Palatable Cod Liver Oil.—Cod liver oil containing 0.2 per cent of benzaldehyde. Its fat soluble vitamin A content is such that 0.002 Gm. per day is sufficient to initiate growth in the albino rat. Sigurd E. Roll, Chicago.

Rabies Vaccine—U. S. S. P. (Semple Method).—An antirabic vaccine (New and Non-official Remedies, 1927, p. 247), prepared according to the general method of David Semple (phenol killed). Marketed in packages of fourteen syringes, each containing 3 c.c. The content of a syringe is administered daily over a period of fourteen days. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., May 21, 1927, p. 1637).

Ampoules Ephedrine Hydrochloride—Swan-Myers, 0.05 Gm., 1 c.c.—Each ampoule contains 0.05 Gm. of Ephedrine Hydrochloride—Swan-Myers (Jour. A. M. A., April 16, 1927, p. 1235), in 1 c.c. Swan-Myers Co., Indianapolis.

Capsules Ephedrine Hydrochloride—Swan-Myers, 0.025 Gm.—Each capsule contains 0.025 Gm. of Ephedrine Hydrochloride—Swan-Myers (Jour. A. M. A., April 16, 1927, p. 1235). Swan-Myers Co., Indianapolis.

Solution Ephedrine Hydrochloride—Swan-Myers, 3%.—A 3 per cent solution of Ephedrine Hydrochloride—Swan-Myers (Jour. A. M. A., April 16, 1927, p. 1235), preserved with chlorbutanol 0.5 per cent. Swan-Myers Co., Indianapolis.

Ovarian Hormone—Squibb.—A sterile, aqueous solution representing the physiologically active principles of the whole ovary. It is standardized in terms of its effect on spayed albino rats, one rat unit being the quantity necessary to induce estrus as judged by the smear method within three days in an ovariectomized, sexually mature rat weighing approximately 140 Gm. Ovarian hormone—Squibb, is administered by hypodermic injection. For recent cases of amenorrhea, artificial or natural menopause, from 50 to 100 units, is given in a series of injections over a period of three to five days. For long existing cases of amenorrhea, artificial or natural menopause, much larger doses may be administered. Ovarian Hormone—Squibb, is supplied in 5 c.c. vials, each cubic centimeter representing 10 units. E. R. Squibb & Sons, New York. (Jour. A. M. A., May 28, 1927, p. 1713).

PROPAGANDA FOR REFORM

Resignation of Dr. George H. Simmons.—The Council on Pharmacy and Chemistry has accepted with

regret the resignation of Dr. George H. Simmons from the chairmanship of the Council. Since 1905, Dr. Simmons has guided the activities of the Council. Before the establishment of the Council, the standard and quality of drugs were left entirely to the manufacturer, except for products in the Pharmacopeia. The rise of the proprietary medicine industry and the numerous attempts made to foist on the public and on the medical profession products without merit led to repeated calls from the House of Delegates of the American Medical Association for an official body to aid in overcoming this evil. As General Manager, in February, 1905, Dr. Simmons first presented to the Board of Trustees of the American Medical Association a plan for the organization of such a body, and in accordance with their decision, arranged for the first meeting, February 11, 1905. Under his guidance the Council has carried forward its work and today still stands as the only medium to which the physician may turn for the unbiased truth regarding proprietary medicines. In accepting his resignation, the Council extended him a vote of thanks, not only on its own behalf but also on behalf of all the medical profession of this country. (Jour. A. M. A., May 7, 1927, p. 1483).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Ambrozoin Tablets (The American Apothecaries Co.), containing ammonium chloride, licorice extract, a calcium compound, traces of terpin hydrate and an iodide. Flam (Flam Co.), a flavored syrup containing ammonium chloride and bromide, with small amounts of sodium benzoate and glycerin. Lemke's Blood Drops and Laxative Herb Tea (Dr. H. C. Lemke Medicine Co.), the first consisting of extracts of plant drugs, including aloe, together with sugar, alcohol and water; the second consisting of a mixture of powdered senna, with small portions of althea, fennel, buckthorn, elder, coriander, saffrafras, flaxseed, lavender, American saffron, licorice, bear-berry, mullein, yarrow, boneset and peppermint. Bronchini (Wm. M. Chapplear and Sons Co.), consisting of ammonium chloride, extracts of plant drugs, flavoring material, including oils of anise, saffrafras, sugar, alcohol and water. Arium Tablets (The Associated Radium Chemists, Inc.), composed mainly of lithium carbonate, starch and talc, with 8.58 millimicrograms of radium to each tablet. Moorite Mineral Powder (The Moorite Products Co.), consisting of powdered clay. (Jour. A. M. A., March 5, 1927, p. 744).

Cardiazol.—From German publications it appears that Cardiazol is claimed to be "Pentamethylentrazol" and is one of a number of products which have been recently put out that are claimed to produce the therapeutic effects of camphor. Cardiazol is a product of Knoll Aktiengesellschaft, Chemische Fabriken, Ludwigshafen a. Rh., Germany, marketed in the United States by E. Bilhuber, Inc., New York. Cardiazol has not been accepted for New and Non-official Remedies. (Jour. A. M. A., March 5, 1927, p. 747).

Nitroscleran.—Basler states that according to the manufacturer "Nitroscleran" has the following composition: Sodium chloride, 6.0; sodium nitrite, 20.0; or 40.0; sodium phosphate, 3.6; potassium phosphate, 2.0; water to make 1,000.0. The A. M. A. Chemical Laboratory reports that its tests were confirmatory of the statement of Basler that the preparation is nothing more than a solution of the well known sodium nitrite dissolved in water to which some salts have been added. (Jour. A. M. A., March 5, 1927, p. 747).

Boric Acid and a Hospital Accident.—In a hospital, through a confusion of technic among three nurses, infants in the nursery were apparently given boric acid solution instead of drinking water and six died. Such accidents will no doubt be prevented in the future by rulings relative to the manner of preparing water for drinking purposes and as to the bottling and labelling of all solutions of medical value. Compared with phenol, cresol or mercury preparations, boric acid is relatively nonpoisonous, but cases are recorded of death, even of adults when considerable quantities of saturated boric acid solutions have been introduced into the body. In reported cases, from 1 to 3 Gm. have produced serious symptoms, and from 15 to 30 Gm. have been fatal to adults. In the recent accidents, each baby must have received from 15 to 60 c.c. of a saturated solution of boric acid. (Jour. A. M. A., March 12, 1927, p. 841).

Asthmolysin.—According to the advertising, Asthmolysin is "a combination of the suprarenal and pituitary hormones in distinct proportions," which is prepared by a "special method." The use of pituitary in bronchial asthma is contraindicated. While epinephrine is used with advantage in some forms of asthma, there does not appear to be any reason why physicians should use a secret preparation containing an undetermined amount of it, when accuracy of dosage and therapeutic effectiveness may be obtained by the use of the pharmacopeial product. (Jour. A. M. A., March 12, 1927, p. 858).

Ephedrine.—The Council on Pharmacy and Chemistry reports that the A. M. A. Chemical Laboratory has found the ephedrine sulphate received from Eli Lilly & Co., to be of acceptable quality. The advertising claims for Ephedrine Sulphate—Lilly, have been revised in accordance with the recommendations of the Council, and therefore the Council accepts Ephedrine Sulphate for description in New and Non-official Remedies and lists Ephedrine Sulphate—Lilly, as a brand which complies with the New and Non-official Remedies' standards. (Jour. A. M. A., March 19, 1927, p. 924).

The Lye Bill.—Congress passed the Federal Caustic Poison Bill, March 2, and the President signed it on the following day. This requires that household packages of lye, ammonia, carbolic acid, oxalic acid, and other caustic substances named in the law be distinctly labelled "Poison," with instructions as to emergency treatment in case of accident. (Jour. A. M. A., March 19, 1927, p. 926).

Benzyl Benzoate.—L. A. Van Dyk Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that L. A. Van Dyk manufactures "Benzyl Benzoate—L. A. Van Dyk," and two preparations of the drug, "Benzyl Benzoate—L. A. Van Dyk, 20 per cent," and "Benzyl Benzoate, 20 per cent, Aromatic." The Council omitted these preparations from New and Non-official Remedies, because the advertising for these products is based on the enthusiastic reports published when benzyl esters were first used experimentally in medicine and the manufacturer did not make the revisions which were required to permit their continued recognition. (Jour. A. M. A., March 19, 1927, p. 944).

Bismogenol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Bismogenol is the nondescriptive name applied to a suspension of the well known basic bismuth salicylate in olive oil by E. Tosse & Company, Hamburg, Germany (E. Tosse & Co., Inc., New York, distributor). E. Tosse & Company are not the discoverers of bismuth salicylate, nor did they discover the therapeutic properties of this drug. For this reason the Council could not recognize the name "Bis-

mogenol," and therefore found the product which is marketed under this name unacceptable for New and Non-official Remedies. (Jour. A. M. A., March 19, 1927, p. 944).

Recent Observations on Scarlet Fever.—The new method of treating scarlet fever patients by the administration of a suitable antitoxin has presented a problem in relation to the development of protection against the disease. A study in the New Haven Hospital of late immunity developed by former patients who were treated with scarlet fever antitoxin and those who did not receive antitoxin indicates that there may be some disadvantage in the therapeutic dosage with the antitoxin in respect to the establishment of a more lasting immunity. It may turn out that the combating of the actual disease decreases the security that an attack of scarlet fever almost invariably promoted in former days. Nicholls, at Yale, has demonstrated the presence of *Streptococcus scarlatinae* in a proportion of persons who exhibited features of infection with hemolytic streptococci without evidences of clinical scarlet fever, thus showing that an existing immunity to the soluble toxin of *Streptococcus scarlatinae* does not prevent the development of local pyogenic infections with this organism. Persons so infected may serve as foci for the spread of scarlet fever. Trask, of Yale, urges that a large excess of antitoxin be used for therapeutic purposes to obtain consistently satisfactory results. In late cases with faded rash, little or no benefit may be expected from antitoxin therapy. Septic complications may continue when the specific toxemia and its attendant rash have terminated, thus suggesting that *Streptococcus scarlatinae* may have two different modes of attack and thus result in different clinical pictures of the disease. (Jour. A. M. A., March 26, 1927, p. 1004).

Tuberc.—This is described by its exploiters as "the only guaranteed treatment for all forms of lung trouble." It is sold by the Tuberc Laboratories, Atlanta, Georgia. According to the quacks that sell Tuberc, "the chemist has long known that locked within the bosom of the pine is the cure of many diseases, among them tuberculosis." Of course, neither the chemist nor any one else has known any such thing, but one cannot expect truthfulness from those who hold human life so lightly as to gamble with it. Further, according to the thesis developed by the Tuberc concern, the scientific world made a fruitless search for its alleged illusive property, until the Tuberc Laboratories succeeded in incorporating in convenient form all the valuable resinous principles of the pine "deemed so vital in the destruction of the Tubercle Bacilli and the arrest of the disease itself." The A. M. A. Chemical Laboratory examined Tuberc and reports that the product appears to be essentially gum turpentine, coated with powdered cinnamon and placed in capsules. (Jour. A. M. A., March 26, 1927, p. 1022).

The Prevention of Measles.—The need for a specific treatment of measles is evident. However, no effective measures for use after onset of the attack have been thus far developed, although methods of measles prophylaxis have been demonstrated. The efficacy of the blood serum of convalescent measles cases in preventing the disease has been established. The convalescent serum must be administered subcutaneously or intramuscularly as soon as possible after contact, the degree of protection afforded depending on the promptness with which the serum is given. Some workers advocate the use of the blood of adults or of children who have had the disease some years previously when recent convalescents are not available. The difficulty of securing a constant supply of convalescent measles serum is the

chief obstacle to its wide use. Favorable results have been reported from the use of an immune goat serum. If confirmed, this may obviate dependence on a human supply. Good results have also been reported with a serum made from blood of sheep inoculated with the Berkefeld filtrate of the nasal secretion and sputum of measles patients. Attempts at active immunization by the use of blood of measles patients at the onset of the eruption have been made. These reports are interesting, but longer observation will be required before their worth can be estimated. In the treatment of established measles, the great desideratum is an effective method of preventing the dangerous secondary infections. (Jour. A. M. A., April 2, 1927, p. 1081).

Arc and Mercury Vapor Lamps.—The carbon arc and quartz mercury arc lamps are generators of ultraviolet energy. The carbon arc lamp delivers about 5 per cent of its total spectral energy in the ultraviolet zone, and the quartz mercury arc lamp delivers about 28 per cent. An erythema dose can be readily obtained with a mercury arc but it requires a considerable exposure in the case of a carbon arc. Some believe that an erythema is necessary, whereas others believe that an erythema is unnecessary, to good clinical results. (Jour. A. M. A., April 2, 1927, p. 1102).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Tonica Para Los Nervios (Henry S. Wampole Co.), containing calcium, sodium, potassium and strychnine glycerophosphates, a trace of lecithin, sugar, alcohol and water. Boro-Pheno-Form (Dr. Pierre Chemical Co.) suppositories containing cocoa butter, quinine sulphate, zinc sulphate, boric acid and traces of formaldehyde and carbolic acid. Whitlock's Specific (The Cherokee Remedy Co.), consisting of approximately 99 per cent of water with small amounts of alum, sodium benzoate and extract of a plant drug. Bailey's Nu-Life (The Tex Bailey Corporation), consisting essentially of a watery solution of epsom salt, iron chloride, salicylic acid, with red pepper and senna, flavored with sassafras and sweetened with saccharine. (Jour. A. M. A., April 9, 1927, p. 1197).

Rice Rupture Cure.—Wm. S. Rice, Inc., Adams, N. Y., sells what the public is led to believe is a cure for rupture. The concern sometimes advertises under its own name and address and sometimes under the name of a stool-pigeon, one Eugene M. Pullen, Manasquan, N. J. The Rice concern, in common with most mail order rupture cures, decries the use of the truss and gives the impression that what they have to sell is something entirely different. However, the device is essentially a band of webbing with a pad and understrap. Like most mail order "rupture cures", the Rice device has a "patent medicine" adjunct—"Developing Lymphol". It is claimed, either inferentially or directly, that Lymphol will repair the break in the abdominal wall and thus permanently cure the rupture. Lymphol was analyzed and found to be an alcoholic solution containing essential oils, capsicum and resin, colored red. (Jour. A. M. A., April 9, 1927, p. 1199).

The Assimilation of Iron.—Investigations have been published, which the investigators believe to indicate that vitamin E is a substance specifically related to iron assimilation in a manner comparable to the relation of vitamin D to phosphorus and calcium metabolism. On this basis the use of ferric citrate and a fat having the properties of wheat germ oil—a potent source of vitamin E—is suggested as a logical basis for the treatment of secondary anemias. Since liver is rich in iron and in vitamin E this may be an explanation for the reported value

of liver in the treatment of pernicious anemia. (Jour. A. M. A., April 23, 1927, p. 1323).

The Scarlet Fever Patents.—The Scarlet Fever Committee, established to control the use of the methods resulting from the discoveries of the Drs. Dick relating to scarlet fever, has thought it advisable to secure in Great Britain patents similar to those sought in this country for the protection of the manufacture and use of the methods and products. In view of alarm expressed in British medical publications, the Drs. Dick explain that they sought the most competent advice before embarking on the procedure. They reveal that they have not had and will not receive compensation personally from the patents; they have sought only to prevent the manufacture and sale of unworthy or inefficacious products in order that the public might be protected against commercial exploitation. (Jour. A. M. A., April 23, 1927, p. 1324).

Book Announcements

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1926. With comments that have appeared in The Journal. Cloth. Price, \$1.00. Pp. 73. Chicago: American Medical Association, 1927.

Those who are interested in the work of the Council on Pharmacy and Chemistry, and this includes all who have to do with the therapeutic use of drugs, look forward each year to the volume which gives the reasons for the Council's rejection of the preparations found unacceptable for inclusion in New and Nonofficial Remedies. These reasons are given in the Annual Reprint of the Reports of Council on Pharmacy and Chemistry; in addition the book gives the reasons for the omission of certain preparations from New and Nonofficial Remedies during the year, and contains several special reports of a general nature authorized by the Council for publication.

This volume contains several special reports of current interest to physicians.

New and Nonofficial Remedies, 1927, containing description of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1927. Cloth. Price, postpaid, \$1.50. Pp. 473. XLVII. Chicago. American Medical Association.

The text of New and Nonofficial Remedies is so carefully scrutinized and revised each year by the various members of the Council on Pharmacy and Chemistry that each issue is essentially a new book, a safe guide to the frontier that lies between the official drugs and the latest preparations launched by the pharmaceutical manufacturers.

The mechanism of the book is excellent: each preparation is classified, and each classification is preceded by a general and critical discussion of the group by one who is an authority on the subject; there is an exhaustive index not only to the contents of the book, but also, separately, to the literature concerning the host of preparations that the Council has found unacceptable for inclusion.

New and Nonofficial Remedies is indispensable to any physician who prescribes drugs. It contains information about medical products which cannot be found in any other publication.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. By a Large Number of Contributors. Forty-eighth Year. 1927.

New York. William Wood and Company. 8 vo. of 560 pages. Illustrated. Cloth. Price, \$6.00.

How to Make the Periodic Health Examination. A Manual of Procedure. By EUGENE LYMAN FISK, M. D., Medical Director, Life Extension Institute, and J. RAMSER CRAWFORD, M. D., Assistant Medical Director, Life Extension Institute. Foreword by MAJOR GENERAL MERRITTE W. Ireland, Surgeon General, U. S. Army. New York: The Macmillan Company. 1927. Octavo of 393 pages. Cloth. Price, \$4.00.

The Human Body in Pictures. A Visual Text of Anatomy, Physiology and Embryology. By JACOB SARNOFF, M. D., Associate Surgeon, United Israel-Zion Hospital; Formerly Associate and Instructor of Anatomy, Long Island Medical College, Brooklyn, N. Y. With Foreword by JOHN OSBORN POLAK, M. D., Octavo of 120 pages with 190 original illustrations, mostly from dissections and animated drawings by the author. Physicians and Surgeons Book Company, Henry and Parific Streets, Brooklyn, N. Y. Octavo of 120 pages. Cloth. Price, \$2.00.

Overcoming Tuberculosis. An Almanac of Recovery. By GERALD B. WEBB, M. D., Consulting Physician, Cragmor, Glockner and Sunnyside Sanatoria, etc., President, Colorado School of Tuberculosis, Colorado Springs, Colo., and CHARLES T. RYDER, M. D., Third Edition Revised. Paul B. Hoeber, Inc., New York, 1927. 80 pages, with a large number of charts. Cloth. Price, \$2.00.

City Health Administration. By CARL E. McCOMBS, M. D., National Institute of Public Administration and New York Bureau of Municipal Research. New York. The Macmillan Company. 1927. Octavo of 524 pages. Cloth. Price, \$5.50.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine and Surgery. Edited by HENRY W. CATTELL, M. D., Philadelphia, and Collaborators. VOLUME II. Thirty-Seventh Series, 1927. Philadelphia and London. J. B. Lippincott Company. 1927. Octavo of 308 pages.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Forty-eighth. Philadelphia. Printed for the College. 1926. Octavo of 405 pages. Cloth.

An Outline History of Ophthalmology. By THOMAS HALL SHASTID, M. D., F. A. C. S., Tenth Avenue Medical Building, Duluth, Minnesota. An attempt to State the History of Ophthalmology in Forty-five Minutes. 1927. Published by the American Optical Company, Southbridge, Massachusetts. 32 pages. Cloth.

Smithsonian Institution, Bureau of American Ethnology, Bulletin 83. Burials of the Algonquian, Siouan and Caddoan Tribes West of the Mississippi. By DAVID I. BUSHNELL, Jr. Washington. Government Printing Office. 1927. 103 pages. Cloth.

Methods and Problems of Medical Education. (Seventh Series). Division of Medical Education, The Rockefeller Foundation, 61 Broadway, New York N. Y., U. S. A. 1927. 99 pages. Paper.

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Editorial

The Clinical Course of Subacute Bacterial Endocarditis.

Months, if not one or two years, may mark the progress of the early symptoms of subacute bacterial endocarditis. The onset is invariably insidious. Symptoms appear with a feeling of lassitude, vague, variable and vagabond pains, loss of appetite, sensation of chilliness, occasional vertigo, recurrent headache, and possibly paroxysmal cough—a group of mixed symptoms often met with by the clinician during the prodromal stage of other serious maladies which later emit individualistic symptoms disclosing more accurately the definite internal disease. Mixed in, and interplaying with the above noted premonitories, are symptoms directing attention to new heart involvement. The signs of the chronic valvular defect, before observed, show some changes. It is during this period of the first stage in the symptomatology of subacute bacterial endocarditis, that physicians suspect in the patients pulmonary tuberculosis, subacute rheumatism with mild sepsis, malaria, typhoid fever or some obscure focal infection. Later, however, when these patients show persistent fever of a low grade, a definite anemia, signs of constant exhaustion, evidence of enlarged spleen and characteristic alteration in cardiac signs such as softened heart sounds, a change in the appearance of cardiac arrhythmias, associated with symptoms of petechial, tender cutaneous nodes, acute signs of the clubbing of the fingers, suspicious embolism, pur-

puric and renal complications, one recognizes the presence of a definite advanced clinical entity of subacute endocarditis. Following this, the fever takes on a "septic course" on the chart. The spleen becomes palpable, painful, tender and enlarged. The anemia grows more marked, partaking of the nature of a secondary type, something like the picture of pernicious anemia but not characteristic of it.

The skin symptoms in subacute bacterial endocarditis become prominent; there appear purpuric and erythematous eruptions at various places and times. There suddenly occur tender or painful nodes or spots (Osler's Nodes) (50 per cent); usually appearing in tips of fingers or toes. There are no signs of hemorrhage in these. The patient may often greet the physician with the statement that a very painful spot in finger or toe has come since his last visit. Not infrequently the pain is very acute and agonizing. Besides embolic phenomena of the skin, vascular embolism of more serious import occurs. These endocardial bergs float off in the circulation and affect with extreme suddenness and ominousness, cerebral, mesenteric, pulmonary, nasal and renal regions; also, the arteries of the extremities. Symptoms and pathologic changes of extreme gravity arise from this to further aggravate grave conditions of the patient. Heart symptoms seem to withdraw a bit from the forefront of the clinical stage, not so much for a want of significance but because of prominence of the complications. However, a change of murmurs is noticed: tachycardia is increased, with signs of general septicemia, arrhythmias appear more persistent, and heart delirium follows along with emaciation, dyspnea, anemia, embolic accidents in the skin, brain, lung, spleen, kidneys. A fatal termination may occur suddenly, or may pass, with pain and agony, through many long hours.*

Two case histories may illustrate the course of this disease.

A young man, aged 25 years, merchant, was taken with the illness now under consideration September, 1923, and died the 25th of the following April, manifesting a rather typical clinical course of the disease. Since earliest boyhood, this patient had been known as a cardiopath, although he had a fairly normal youth and young manhood. At twelve years

*Read Bierring, J. A. M. A., Vol. 87, No. 7, page 464, for good description and discussion of this disease.

he was rejected in a Y. M. C. A. examination on account of his heart. As a child he had measles and diphtheria; he had had tonsillitis. In his late teens and early twenties he was somewhat dissipated. He had syphilis when twenty, and had been given salvarsan with a resulting severe reaction and jaundice. He had gonorrhea six years before this illness. At the time of what proved to be his last illness, the Wassermann tests were negative. Temperature varied from 99.6 to 103 degrees Fahrenheit, for the entire course of his illness of nine months. There were days when the temperature would not go over 100.2 while in other days it reached 103 degrees F. Anemia was evident and grew progressively worse. Starting in September, 1923, with hemoglobin 86 per cent: R. B. Cells 4,840,000: leucocytes 16,600: in April, he showed hemoglobin of 21 per cent; R. B. Cells 496,000 and leucocytes 9,000. The spleen showed enlargement and caused definite pain. The skin displayed, in the course of the illness, characteristic phenomena of the disease, purpuric areas, petechial rashes, tender cutaneous nodes and painful "spots". Vascular embolic phenomena were observed in the last two months, also transient blindness, transient paralysis, anginal pains, sense of faintness, temporary loss of consciousness. The heart showed systolic and diastolic murmurs, signs of dilatation, and auricular fibrillation and flutter toward the end of his illness. There was no gross sign of failing compensation, such as dyspnea or dropsy, although there was moisture in posterior bases of the lungs: there was some evidence of engorgement of the liver and of passive hyperaemia of the kidneys. There had been all along signs of progressive acute nephritis.

Repeated blood cultures were negative. Tonsillectomy was done in early months of the illness without apparent harm but with no advantage to the patient.

A girl student, aged 17, was taken with the illness under consideration about last of October, 1925, and died April 24, 1926, being sick about six months. Her history disclosed the following infections, so-called, malarial fever when five, and during this sickness heart murmurs had been observed. At age of seven years, she had had an attack of rheumatism. Had had one attack of tonsillitis. From time

to time had had "painful joints". With exception of sickness noted, patient had never been very sick, but had never been very well. Her mother was living and well: father died of tuberculosis.

Initial symptoms of the fatal illness began with pain in her joints. Temperature began to show febrile elevations but was often normal in the mornings. There were headaches and pain in her eyes. She had been very tired, easily fatigued by school duties. Her temperature ran a septic course until death. Anemia and pallor grew progressively more marked until the end. Purpuric and petechial phenomena appeared at intervals during the last ninety days of her illness. Very painful circumscribed points would suddenly appear at a finger tip or toe. The joints were never greatly inflamed, although she showed red spots at times in wrists and ankles. There were attacks of sudden blindness and eye ache. There was marked pain in region of the spleen and it was enlarged. The heart was enlarged, was rapid and irregular in its systoles, and a loud systolic murmur at the apex was heard in the beginning. Murmurs became more marked as the illness proceeded and the heart underwent dilatation. The closing events of the illness were characterized by painful and distressed breathing and dropsy. She died suddenly, however, apparently from a cerebral embolism.

HEART FAILURE

Remarks on heart failure may be prefaced by a synoptic statement of the nature of heart failure. It is only possible here, however, to give a brief notice of the nature of heart failure. That picture of cardiac distress displayed in syndromes of dyspnea, cyanosis, edema, venous stasis, enlargement of the liver and diminution of urine (with more spectacular emphasis upon sudden dyspnea, pulmonary edema, and cardiac dilatation in acute failure)—and with gradual respiratory, cardiac, hepatic, nephritic congestive states in slow cardiac failure, gives one a rather full description of heart exhaustion. These evidences of heart failure show in heart diseases of various kinds. The heart conditions which we meet in dealing with cardiopaths should be considered to be the real causes of heart failure. Passing over incidental and accidental factors, such as over-exertion and exhaustion, acute indigestion so-

called, extremes of cold and heat, emotional strains, intoxications, disorders of the glands of internal secretion, as the thyroid, diseases of the lungs, etc., we may consider myocardial disease, primary or secondary, as the direct cause of cardiac failure.

Degeneration of the myocardium may be primary in form of fatty infiltration and fatty degeneration. Fatty infiltration is met with in both men and women and accompanies obesity or corpulence. The fatty deposits follow the interventricular groove, the coronary vessels, right border of the heart and, from these main lines of deposition, fatty infiltration extends to the interior of the myocardium. This, in fat patients, involves the heart in lobulated deposits of adipose tissue. Cardiac failure may occur in such patients from structural changes of heart muscle as well as from the concomitant physical factor of obesity.

Fatty degeneration of heart muscle fibers is not a common form of muscle degeneration in which cardiac failure symptoms appear.

But it is that form of muscle degeneration which is designated as myocarditis that is most frequently the cause of heart failure. This is a degeneration of muscle fibers that robs the muscle of its physiologic functions of conductivity, contractility, rhythmicity, irritability and tonicity. Myocardial degeneration may be interstitial, vascular or parenchymatous. It may involve the heart in such general pathology that certain extra heart factors, suddenly or gradually imposed, may cause this organ suddenly or gradually to fail in its function and to emit signs of acute exhaustion. These changes occur in hearts acutely infected (endocarditis); in final stages of chronic valvular lesions, in late stages of such chronic diseases as chronic Bright's disease, arteriosclerosis, syphilis; in the thyroid heart; in chronic arrhythmias of the heart (heart block, paroxysmal tachycardia, auricular fibrillation and flutter); in angina pectoris and in coronary thrombosis.

News Notes

The University of Virginia, Department of Medicine,

Held its final exercises for 1927 in connection with those of other of the graduate schools of the University, on June 12, 13 and 14. Baccalaureate sermon on the 12th, by Dr. Henry

Sloane Coffin, of New York City, formally opened the exercises. Monday, the 13th was alumni day. On this day, the Alumni Association held its regular business session, which was followed by a luncheon to the graduating class. That afternoon, President and Mrs. E. A. Alderman gave their usual reception to the graduates and alumni. The alumni ball took place that night.

On Tuesday, class day exercises were held in the morning. That afternoon a band concert on the lawn was followed by the assembly for the academic procession. Hon. Junius P. Fishburn, of Roanoke, president of the State Chamber of Commerce, was speaker at the graduating exercises. On this occasion, over three hundred degrees were awarded, forty-two being to doctors of medicine. Exercises were closed with the final ball on Tuesday evening. Following the award of diplomas, the Horsley memorial research prize in medicine was awarded to Dr. Charles Bruce Morton, II, of Brooklyn, N. Y., a graduate of the medical department in 1922, for his thesis, "Findings in Experimentally Produced Peptic Ulcer; Etiologic and Therapeutic Considerations."

Announcement was made of the gift of \$156,000 by the General Education Board to the Department of Medicine for development of teaching in surgery, internal medicine, public health and hygiene. This supplements two previous gifts by the Board, making \$800,000 toward a total of \$1,400,000 for the construction of new buildings for the medical school.

Following is a list of graduates in the Department of Medicine with their hospital appointments, all except one member of the class having accepted an appointment:

University of Virginia Hospital, University, Va.—Drs. Eugene A. Bain, Petersburg, Va.; William C. Eikner, Aberdeen, Miss.; Frederick Henry Fechtig, Jamaica, N. Y.; Raymond A. Gandy, Stamford, Conn.; Antonio Gentile, Suffolk, Va.; Ellis C. Moore, Carthage, Miss.; and George W. Sargent, Clifton, N. J.

Cincinnati General Hospital, Cincinnati, O.—Dr. George B. Arnold, Lynchburg, Va.
Massachusetts General Hospital, Boston, Mass.—Dr. Edward F. Bland, West Point, Va.
St. Luke's Hospital, New York, N. Y.—Dr. James R. Boulware, Jr., Lakeland, Fla.

U. S. Public Health Service, Washington, D. C. — Drs. William C. Brann, Village, Va., and John Russell Gill, Jr., Monroe, Va.

Emergency Hospital, Washington, D. C. — Drs. James M. Campbell, Saltville, Va.; Claiborne Barksdale White, Sutherlin, Va., and Matthew J. W. White, Jr., Norfolk.

Roanoke Hospital, Roanoke, Va. — Drs. Virgil O. Choate, Galax, Va., and Sanders G. Davidson, Norfolk.

Harper Hospital, Detroit, Mich. — Drs. Edward B. Cox, Louisville, Ky., and John M. Nokes, Hollidaysburg, Pa.

United States Navy — Drs. David John Cracovaner, New York, N. Y., and Ernest D. Davis, Jr., Standardville, Va.

Moses Tayloe Hospital, Scranton, Pa. — Dr. Samuel M. Davenport, Kingston, Pa.

Cora Donnell Hospital, Prescott, Ark. — Dr. Albert B. Dickey, Merryville, La.

Columbia Hospital, Pittsburgh, Pa. — Dr. Israel Felman, Pittsburgh, Pa.

Johns Hopkins Hospital, Baltimore, Md. — Dr. Marshall P. Gordon, Jr., Richmond, Va.

Jefferson Hospital, Roanoke, Va. — Dr. Andrew DeJarnette Hart, North Garden, Va.

Union Memorial Hospital, Baltimore, Md. — Dr. Philip J. Hirshman, Brooklyn, N. Y.

Coney Island Hospital, Brooklyn, N. Y. — Dr. Maurice R. Kleinberg, New York, N. Y.

Beth Moses Hospital, Brooklyn, N. Y. — Dr. Eugene C. Milch, New York, N. Y.

T. C. & I. Hospital, Birmingham, Ala. — Dr. Lonnie Bondurant Moseley, Jackson, Miss.

University of Minnesota Hospital, Minneapolis, Minn. — Dr. Kinloch Nelson, Richmond, Va.

Lincoln Hospital, New York, N. Y. — Dr. Leonard Orens, New York, N. Y.

Grassland's Hospital, Valhalla, N. Y. — Dr. Joseph Walker Owen, Richmond, Va.

University of Michigan Hospital, Ann Arbor, Mich. — Drs. Hugh G. Reeves, Greenville, Tenn., and Walter K. Slack, Saginaw, Mich.

Binghamton State Hospital, Binghamton, N. Y. — Drs. Walter E. Scribner, Earlsville, Va., and Manley A. Siske, Pleasant Garden, N. C.

Blue Ridge Sanatorium, Charlottesville, Va. — Dr. Otis N. Shelton, Dunkirk, N. Y.

Virginia Mason Clinic, Seattle, Wash. — Dr. Henry C. Turner, Leesburg, Va.

Kings County Hospital, New York, N. Y. — Dr. Richard Henry Walker, Jr., Hattiesburg, Miss.

Bellevue Hospital, New York, N. Y. — Dr. Katharine Fox Woodward, Boston, Mass.

Dr. Nathan H. Sachs, New York, N. Y., did not accept an appointment at this time.

Petersburg Meeting, Medical Society of Virginia.

Petersburg doctors are now at work to make our coming meeting in their city a success in every way, and are counting on a good attendance. Their committees are actively at work and the general chairman and sub-chairmen, as listed in our June issue, will be glad to answer any inquiries.

The Program Committee selected "Diseases of the Kidney" as the subject for general discussion, and sub-divided it as follows:

"Physiology of the Kidney" by Chas. C. Haskell, M. D., Richmond;

"Diagnosis (Laboratory and Clinical) of Diseases of the Kidney" by F. C. Rinker, M. D., Norfolk;

"Medical Aspect of Diseases of the Kidney" by Philip Smith, M. D., Abingdon;

"Surgical Aspect of Diseases of the Kidney" by Julian M. Robinson, M. D., Danville.

Discussion of these papers is to be opened by Dr. Joseph F. Geisinger, of Richmond.

Invited guests of the president already named are Dr. Stewart Roberts, of Atlanta, Ga., and Dr. Wilburt C. Davison, of Baltimore, recently elected dean of the medical department of Duke University at Durham, N. C.

There seems promise of a large number of papers by members and each author is expected to secure some member of the Society to open discussion on his paper. Titles for the program will be received at the Society's office beginning August 18.

We get from these meetings what we put in them, so make your plans to attend and take an active part in the proceedings.

Vacation Time is Here.

Now that vacation time is here, don't lose sight of the fact that the doctor is as human as the patients for whom he prescribes, and owes it to himself as well as his clientele to have surcease from his daily "meat and bread" work. Vacations are broadening—be they long or short. They get us out of ruts and enable us to put more zest and vim into our work after even a short respite from our duties.

If you cannot get away from work entirely, cultivate an out-of-doors hobby for the sum-

mer months and pursue it and you will be amazed how it will relieve you from the strain under which a doctor lives. Plan your vacation and forget work awhile.

Dr. J. L. Harvey Out for Legislature.

Dr. J. Lewis Harvey, of Simpsons, Floyd County, Va., class '09, Medical College of Virginia, has received the endorsements, and delegates from his section have been instructed to vote for him at the democratic district convention to be held at Roanoke, Va., August 15. He lives in the district composed of Floyd, Franklin and Bedford Counties. Dr. Harvey announces that he is in thorough accord with the medical profession in its fight against various cults in this State and wishes to hear from his professional friends with regard to this or other subjects at any time.

The Mid-Tidewater Country Medical Society.

On June 27th, a number of doctors from Essex, Gloucester, King and Queen, King William, Mathews, Middlesex and York Counties, met at Saluda and organized the Mid-Tidewater Country Medical Society for the purpose of discussing the problems that confront the general practitioners in that section. Dr. James W. Smith, Hayes Store, was elected president; Dr. James D. Clements, Ordinary, treasurer; and Dr. Malcolm Harris, West Point, secretary. The vice-presidents and executive council were selected so as to have one vice-president from each county other than the one represented by the president, and are as follows: Dr. R. R. Hoskins, Mathews; Dr. W. P. Jones, Urbanna; Dr. R. D. Bates, Newtown; Dr. E. L. W. Ferry, Millers Tavern; Dr. L. O. Powell, Seaford; and Dr. A. Warner Lewis, Ayletts.

The Society will hold quarterly meetings at various points in its territory. The next meeting, to complete the organization, will be held at Gloucester C. H., Va., on July 27th.

The Northern Neck Medical Society

Held its regular meeting at Heathsville, Va., in May, with the president, Dr. H. J. Edmonds, of Kilmarnock, presiding, and Dr. R. E. Booker, of Lottsburg, acting as temporary secretary. There was a good attendance of members and several visiting doctors who presented papers. Dr. W. B. Richardson, who recently located in Heathsville, was elected a member. The next meeting will be held at Warsaw in October, 1927.

The Pittsylvania County and Danville Medical Society

Held its regular meeting in Chatham, on June 14th, the president, Dr. C. A. Easley, of Chatham, presiding. Dr. J. A. Hawkins, of Danville, was at the secretary's desk. Cases were reported by Drs. S. E. Hughes, Jr., and J. J. Neal, of Danville, and papers were read by invited guests, Drs. E. H. Terrell and Stuart Michaux, of Richmond. Dr. I. C. Harrison was elected to represent the Society in the House of Delegates at the Petersburg meeting of the State Society. The Society is to hold its next meeting at Danville on September 13th.

The Norfolk County Medical Society,

At its annual meeting in June, elected Dr. N. G. Wilson, of Norfolk, as president, and Dr. James H. Culpepper, Norfolk, vice-president. Dr. Lockburn B. Scott, Norfolk was re-elected secretary-treasurer.

The Nelson County Medical and Surgical Society,

At its meeting on May 31st, by unanimous vote decided to send \$50.00 to the Red Cross for the relief of the Mississippi flood sufferers. A resolution was adopted making the fee for giving the toxin-antitoxin at the clinics held in Nelson County in co-operation with the State Board of Health \$1.50 for each patient. It was further decided that these clinics should be held and given with the consent and co-operation of the doctors living in the community where given.

The Society will meet next on the fourth Monday in July at Lovingston. The new officers—Dr. J. F. Thaxton, Tye River, president, and Dr. W. D. Meeks, Massies Mill, secretary-treasurer—will preside at this time.

Married.

Dr. James Fred Edmonds, of Accomac, Va., and Miss Julia de Tolson Dunaway, of Richmond, June 18.

Dr. William Seth Snyder, Jr., Jefferson City, Mo., and Dr. Grace Bryan Rollins, of Richmond, June 25.

Dr. Francis J. Clements and Mrs. Mildred Bashaw Brand, both of Fork Union, Va., June 17.

Dr. J. Philip Jones, Jr., and Miss Helen Brower Hickerson, both of Richmond, June 30.

Dr. Holcombe Harris Hurt, of South Boston, Va., and Miss Martha Lee Adams, of Blackstone, Va., June 15.

Dr. Harry A. Dick, New York, N. Y., of the class of '27, Medical College of Virginia, and Miss Lillian H. Straus, of Richmond, June 12.

Dr. William Cralle Brann, of Village, Va., a member of the class of '27, University of Virginia, Department of Medicine, and Miss Kathryn Luise Tuck, of Bluefield, W. Va., June 23.

Dr. Marion H. Seawell, Jackson, N. C., of the class of '26, Medical College of Virginia, and Miss Constance Victoria Tuttle, of Richmond, June 21.

Dr. Earl J. Haden, East Leake, Va., member of the '27 class, Medical College of Virginia, and Miss Anna Virginia Headspoth, South Boston, Va., April 21.

Does Infant-Welfare Work Preserve the Unfit?

It has often been said that the methods of preventive medicine which has so greatly decreased the deaths of infants under one year of age, only preserve babies to die in later childhood. Dr. I. S. Falk of the department of hygiene and bacteriology of the University of Chicago, after a study of the deaths of white infants and children up to the age of ten years during a quarter of a century period in Chicago, finds, on the contrary, that the death rates for the subsequent years are also lower.

Park Pavilions for Convalescents in The Netherlands.

At the pavilions for convalescents which have been established in public parks in Amsterdam and other cities of The Netherlands by a private organization, the child patients are given general instruction and vocational training. Persons recovering from non-contagious diseases or suffering from incipient tuberculosis are admitted to these pavilions on payment of a small fee and remain there during the day under the care of physicians and nurses. The usual period of treatment is six weeks. The undertaking is maintained by contributions from the Red Cross and private individuals and by municipal subsidies.

The Watson Medical Library.

The Richmond Academy of Medicine announces that through the generosity of Miss A. W. Archer, Mrs. A. H. Christian and Miss Virginia R. Archer, it has become the very fortunate possessor of the medical library of the late Dr. George Watson. There are 165 books in the collection, the date of publica-

tion ranging from 1740 to 1840, the authors ranging from the well-known Sydenham, Thomas Hunter, Bell and our own Benjamin Rush, who was Surgeon-General in the Revolutionary War, to lesser celebrities, such as Robley Dunglison who was brought from Europe by Jefferson to teach at the University of Virginia.

While medical works of those days were not as profusely illustrated as at present, many contain beautiful copper-plate and steel engravings, which with the clear-cut, old-fashioned text printed on laid paper, which seems to be coming into vogue again, delight the eye and thrill one with admiration for those old fathers in medicine who with not a single accessory of the present-day physician, and through observation alone, laid well the foundations of modern practice.

The donors of the books were the daughters of Mr. and Mrs. Robert S. Archer and granddaughters of Dr. Watson. Dr. Watson was born in Louisa County on February 3, 1784. In 1803, he was a student at William and Mary College, thereafter entering the University of Pennsylvania, and later graduating in medicine in London, Edinburgh and Paris. Returning to this country, he came to Richmond where he entered upon the practice of medicine and surgery.

In May, 1815, Dr. Watson married Miss Anne Riddle, of Alexandria. In 1825, he purchased the property at the northeast corner of Sixth and Franklin streets, afterwards building the small, gray structure to the north of the residence, in which he had his offices and lectured to medical students. His practice was lucrative, but his life arduous, and after forty years of utmost activity, his health failed and he retired to his country home in Louisa where he died in 1853.

It is believed that the Watson library added to the Miller collection will, when the home of the Academy is completed, enhance the reputation of Richmond as a medical center, attracting not only the undergraduate but also the graduate student interested in research in medical progress and history.

M. W. P.

Addition to Stuart Hospital.

A splendid addition has just been made to St. Martin's Hospital, Stuart, Va. This was opened early in July. The new wing is two

stories high and of brick throughout. It gives a total of twenty-five rooms including offices, operating rooms, etc., and will accommodate twenty patients. Mrs. Eggleston, a graduate of Edmunds Hospital, Danville, Va., is head nurse.

The hospital is owned and operated by Dr. W. C. Akers, a graduate of the former University College of Medicine, Richmond, in 1912.

Promotion at University of Virginia.

Dr. William Edward Bray, of the University of Virginia, Department of Medicine, has been promoted from associate professor of clinical diagnosis to full professor of clinical pathology.

Dr. M. Pierce Rucker,

Richmond, Va., was elected first vice-president of the Alumni Association of Randolph-Macon College, at its annual meeting in Ashland, Va., in June.

Visiting Northern Medical Centers.

Dr. and Mrs. R. L. Raiford, of Franklin, and Dr. and Mrs. D. L. Harrell, of Suffolk, left early in July for a motor trip to visit some of the northern medical centers, including Johns Hopkins in Baltimore, and the Jackson Clinic in Philadelphia.

Dr. Roy L. Noblin,

Oxford, N. C., of the class of '24, Medical College of Virginia, went to New York, the middle of June, to take post-graduate work in urology at the New York Polyclinic Medical School and Hospital.

School Dental-Hygiene Work Pays.

Bridgeport, Conn., has carried on school dental-hygiene work for ten years. Recently a dental survey was made of 24,000 children from the kindergarten to the eighth grade in its public and parochial schools. Comparing the results with those of the examination of 1,000 children in another community of the same State where no school dental-hygiene work had been done, it was found that 8 per cent of the Bridgeport children and only 2 per cent of the children of the other community had no fillings and no cavities.

Findings for the 16 racial groups among the Bridgeport children showed very little difference that could be attributed to nativity, but children from sections of the city where the standard of living is high had the better teeth.

Child Welfare in Denmark.

Copenhagen has eight baby clinics supervising about 1,200 babies. An unusual feature of these clinics is that only breast-fed infants are admitted. This is done to encourage the mothers to nurse their babies. Each mother is given a quart of milk a day for her own use if she attends the clinic regularly.

Denmark has the distinction of having placed dependent children in foster homes as early as 1830, and this type of placement has become a characteristic feature of the Danish child-protection system.

Dr. J. G. Carter,

After a year spent in special work in gynecology and obstetrics in the Graduate School of Medicine at the University of Pennsylvania, Philadelphia, has returned to Richmond and resumed his practice at his former home, 115 West Twelfth Street.

Dr. E. E. Walker,

After several years at Scarbro, West Virginia, has returned to his former home at Pamplin, Va.

The West Virginia State Medical Association

Held a most excellent meeting at White Sulphur Springs, W. Va., last month, under the presidency of Dr. Chester R. Ogden, of Clarksburg. The program included a number of prominent speakers from other states. A conference of county secretaries was held during the session. It was decided to hold the 1928 meeting at Fairmont and the following officers were elected: President, Dr. C. A. Ray, Charleston; vice-presidents, Drs. D. G. Preston, Lewisburg; E. L. Armbrecht, Wheeling, and W. C. Swann, Huntington; treasurer, Dr. T. M. Barber, Charleston; executive secretary, Mr. Joe W. Savage, Charleston; editor of *West Virginia Medical Journal*, Dr. James R. Bloss, Huntington.

Dr. Herbert C. Jones

Recently returned from a visit to some of the Northern clinics and announces the opening of his office at 431 West Washington Street, Petersburg, Va., for the practice of surgery.

The American Pediatric Society,

At its recent meeting, elected Dr. John Claxton Gittings, of Philadelphia, president, and re-elected Dr. Howard C. Carpenter, also of Philadelphia, secretary. The next meeting is

to be held in Washington, D. C., in the Spring of 1928.

Dr. A. B. Schilling,

Recently with the U. S. Idle Fleet at Lee Hall, Va., is now located at The Rochambeau, Washington, D. C.

The Southside Virginia Medical Association

Met in Emporia on June 14th, with a goodly attendance, and a very interesting and helpful program was carried out. At the close of the meeting, the visitors were tendered a dinner at the Emporia Hunt Club by the doctors of Greensville County. Dr. Wright Clarkson, Petersburg, is president, and Dr. R. L. Raiford, Sedley, secretary-treasurer.

The Association will be guests of the McGuire Clinic in Richmond, on the second Tuesday in September.

Former Illinois Doctors, Attention!

Doctors who lived formerly in Illinois, or who are descendants of pioneer physicians of the "Illinois country" will hear with interest that Volume One of the "History of Medical Practice in the State of Illinois" is ready for delivery.

The History has been written under the supervision of a committee appointed by the Illinois State Medical Society as a commemoration of its seventy-fifth anniversary but more especially to make a living tribute to those valiant men of the medical profession who played so able a part in the exploration, settlement and development of the Illinois country.

This History of medical practice in the State of Illinois, embodies in the course of its narration, an interesting and illustrated digest of the early efforts of white settlers in Illinois, with specific allusion to the share in these tasks, performed by medical men. Included are portraits of rare interest, reproductions of historic documents, excerpts from diaries, personal letters, human reminiscences of days fraught with peril, filled with hope, and not devoid of humor, through a period of about 250 years. Attics, family albums, safe deposit vaults, and state records have been ransacked to produce the material needed for this chronicle, which is a miniature encyclopedia of scientific advance in the Illinois country, which formerly included the territory of about six of the Central States.

The edition is limited. It will not be reprinted. A place in every physician's library

is merited by this volume, both as a tribute to the men who blazed the trail for modern scientific medicine and as an ever-present reminder and authority as to the great advances being made in medicine every day. Volume One is now ready. Volume Two will follow soon. Future years will bring other volumes so that this History will be an ever virile monument to the men and incidents whom it would honor. Orders may be sent to Committee on Medical History, Illinois State Medical Society,—Medical & Dental Arts Building, 185 North Wabash Avenue, Chicago, Illinois,—Charles J. Whalen, M. D., Chairman.

Tests Show High Food Value of Pork.

Results of scientific experiments have proved that the public's appetite for pork products has a sound basis. Bacon and eggs are no accidental combination; neither is a ham sandwich. There are scientific reasons which explain also why the energetic American People consume pork so liberally. In recent years the consumption of this meat has amounted to about fifty per cent of total meat dietary in the United States, according to estimates of the Bureau of Animal Industry, United States Department of Agriculture.

Investigations conducted by Ralph Hoagland, biochemist of this Bureau, and his associates, have resulted in many striking facts concerning products derived from the lowly hog. The varying content of proteins, fats and vitamins in different cuts explains the popularity of swine products.

In summing up his experimental work and after considering the results of other investigators in the field of biochemical research and nutrition, Mr. Hoagland concludes that, from a scientific standpoint, pork is justly entitled to the high place which it has already assumed in the American diet. It is particularly valuable as a source of fat and energy; it compares favorably with other meats in digestibility; it contains a fair proportion of protein of excellent quality, and a liberal amount of Vitamin B. On account of its high energy value, pork is particularly valuable as a food for persons engaged in heavy manual labor. The leaner cuts, however, such as ham, tenderloin, and chops, may be eaten interchangeably with other meats even by persons leading sedentary lives.

Thus it seems that the much maligned boarding housekeeper at least had good sense as to

food values when she served the proverbial "ham and eggs three times a day."

Cuba's Infant Mortality Rate and the Milk Supply.

Cuba's high infant mortality rate, attributed mainly to gastro-intestinal disorders, caused the Government of the island to call a conference of public health officials to consider measures for regulating the milk supply. As a first measure, two supervising health officers were appointed—one for urban and one for rural districts.

Veterans' Bureau Hospitals Approved.

Brig. Gen. Frank T. Hines, director of the Veterans' Bureau has just been advised that everyone of the fifty-two hospitals maintained and operated by the Bureau has been fully approved by the American College of Surgeons which is the criterion in matters of this kind in the United States.

The Veterans' Bureau hospitalization program is the largest in the world, and attainment of this high standard throughout the service is one of the outstanding features of the present administration of the Veterans' Bureau.

In announcing to the Director the full approval of these institutions, Dr. M. T. MacEachern, Director of Hospital Activities of the American College of Surgeons, took occasion to acknowledge "the whole hearted support of the Director and his staff and the personnel in the various hospitals considered", as contributory factors in attaining the 100 per cent mark.

Dr. J. B. Harvie Waring.

Blanchester, Ohio, has been invited to read a paper before the Clinical Congress of Physical Therapy in Chicago, next November.

A New American Medical Directory Published.

For more than twenty years the American Medical Association has been publishing a directory of the medical profession. Ten editions have appeared, the last one (1927) being just off the press.

The first edition (1906) contained 128,171 names of physicians in the United States, its dependencies and Canada. The new Tenth Edition includes 164,002 names.

This edition of the Directory contains 10,353 names which have not appeared before, while 6,052 names have been dropped on account of death. There were more than 60,000

changes of address in the two year period since the last Directory.

The Directory is not only a list of names and addresses of physicians, but gives proof of the right of each physician listed to practice medicine—namely, time and place of graduation and year of license. In addition, society membership, specialty and office hours are included.

The information concerning hospitals and sanitariums of the United States is another valuable and extensive feature. Descriptive data appears following the names of 7,816 hospitals and sanitariums such as type of patients handled, capacity, and name of superintendent or director.

The list of physicians in each state is preceded by a digest of the laws governing medical practice in that state; members of licensing board; state board of health; names of city, county and district health officers; officers of constituent state associations and component county and district medical societies. The book is one vast source of reliable data concerning the personnel of the medical profession and the institutions and activities closely related to it. It contains 2,575 pages and is published and sold by the American Medical Association, 535 North Dearborn Street, Chicago.

Dr. Harlow Brooks

Has been appointed professor of Internal Medicine at the New York Polyclinic Medical School and Hospital of New York City.

Health Authorities Plan to Have Perfect Oysters.

The oyster sanitation work in Virginia has recently been placed under the control of State Health Commissioner, Dr. E. G. Williams. During a recent inspection trip in the oyster section, the oystermen and others agreed to support Dr. Williams' plans to sanitize the oyster area, in which work the State will co-operate with local authorities. As typhoid fever is the one disease that gives greatest concern in connection with raw food, the plan is first to eliminate this disease from the oyster section, so that the oyster may not get the germ.

Cost of Maternity and Child-Welfare Work in Great Britain.

During the year ended March 31, 1926, the Government of Great Britain expended the equivalent of about \$4,350,450 as grants in aid

for maternity and child-welfare work in England and Wales. During the two previous years almost as large amounts were spent on the work.

Sex Education—A Symposium for Educators.

The U. S. Public Health Service announces the issuance of a new publication known as "Sex Education—A Symposium for Educators," which should prove of special interest and assistance to physicians and nurses who are engaged in school hygiene or physical education. Educators generally are recognizing the importance of sex educational work, not only from the standpoint of venereal disease prevention, but also for the purpose of influencing behavior and inculcating principles of normal conduct in the growing child. This publication discusses methods of including sex education with the existing high school curriculum.

Physicians will be particularly interested in the article, "Sex Education as a Factor in Mental Hygiene." This article points out the peculiar fitness of conducting sex educational work in the high school, due to the fact that pupils of high school age being either at puberty or in early adolescence are in an especially receptive state for such instruction. The scope of this publication is broad as its purpose is really to serve as a manual of the various phases of sex educational work in schools.

The symposium will be sent free of charge to all interested physicians or nurses. Application should be made to the United States Public Health Service, Division of Venereal Diseases, Washington, D. C.

The American Surgical Association.

At its annual meeting recently held in Richmond, elected Dr. Emmet Rixford, San Francisco, as president, and Dr. Lincoln Davis, Boston, secretary. It was decided to hold the 1928 session in Washington, D. C.

Results of European Influenza Epidemic.

A bulletin issued by the League of Nations states that although the total mortality caused by the influenza epidemic cannot as yet be given, it would appear from available statistics to have been probably not less than 100,000, possibly more. The epidemic subsided in March or April. The western part of Switzerland suffered at least twice as much as the remainder of the country, and the town of Geneva

the most. In towns of over 20,000, there were more deaths among women than men, and a good percentage of deaths from the epidemic were among persons of less than thirty years of age.

Dr. and Mrs. D. W. Kelly.

Culpeper, Va., left about the middle of June for a thirty day tour of North America, which included visits to Mexico, the Pacific coast to Alaska and through the Canadian Rockies back home by the Great Lakes and Chicago, thence to Washington.

Dentists in the Ascendency.

According to the bulletin issued by the Carnegie Foundation for the Advancement of Teaching, the number of dentists in the United States has been growing more rapidly than the general population, but the distribution is very irregular. At the end of 1925, it was found that there was in the United States one dentist to 1,758 population and one physician to every 767 population. In the United States, the number of dentists has steadily been increasing on a rising plane of requirements in both the preliminary and professional phases of dental training.

We find also that women are showing an increasing tendency to engage in dental training. While the figures for 1870 show only 24 women dentists, the number estimated for 1926 is 2,100. Nearly all dental schools in North America are open to them.

Dr. Thomas W. M. Long.

Of Roanoke Rapids, N. C., was recently elected president of the First National Bank in that place.

Vaccination Against Typhoid Fever Advised for Tourists.

Our State Board of Health has just issued a bulletin advising that all people who intend to travel by automobile, stopping at wayside inns or rural hotels for food and drink, should be vaccinated against typhoid fever.

The Illinois Health Department states that there has been a widespread epidemic of typhoid fever in and around Montreal, Canada, since early March, and, as there may be many sources of infection in that city, suggests that tourists planning trips in that vicinity should be inoculated against typhoid.

It is always well to bear in mind the old adage about "an ounce of prevention."

Two Well Known Drug Firms Consolidate.

The Powers-Weightman-Rosengarten Company of Philadelphia, on July 1st consolidated with Merck and Company of New York, under the name of the latter firm. Rahway, New Jersey, will be headquarters for the combined firm. This consolidation brings together two of the best known pharmaceutical houses in this country, and we extend to them our best wishes for continued success.

Jefferson Medical College to be Enlarged.

Jefferson Medical College, Philadelphia, one of the oldest medical institutions in this country, recently put on a campaign for \$1,500,000 for improving and enlarging its activities. There are 6,000 of its 14,625 graduates still rendering excellent medical service throughout the world. The first class was opened at Jefferson Medical College in October, 1825, and the college has made wonderful strides since. With the money raised in this latest campaign, a twelve-story brick building is to be erected, to match the new sixteen-story hospital opened in 1924. The first six floors will be equipped at once for medical school purposes; the other six floors will permit a broadening of the program of the college from time to time.

Summer Round-up of Children.

The return of summer is bringing again the "round-up" of children who are to enter school for the first time next fall, which has been carried on by the National Congress of Parents and Teachers. Last year 50,000 children were examined, and nearly half the defects discovered were reported to have been corrected. In 1926 twice as many States participated in the round-up as in the previous year.

Successful Child-Welfare Work in the West and in the Near East.

The making of successful motion pictures is not the only ambition of the Hollywood neighborhood. Los Angeles County, in which that interesting settlement is situated, is making a determined drive for healthier children. In 1926 the county health department conducted 55 weekly child-welfare conferences for well children from birth to 6 years of age, and over 44,000 visits were made to them during the year. These were all outside the city of Los Angeles. In one district where 65 per cent of the new-born infants were brought to the health center, the infant mortality rate for these infants was 12 per 1,000 infant cases.

whereas the adjusted rate for the whole district was 77 per 1,000 live births.

Excellent results have followed similar work of the Patriotic Institute of Athens, Greece, which in 1926 maintained 10 health centers, caring for over 2,000 children. Among the infants supervised by these centers the mortality rate was about one-third as great as the infant mortality rate for the city as a whole.

Dr. I. Roy Wagner,

Recently at the U. S. Veterans' Hospital, at West Haven, Conn., has been transferred to the Edward Hines, Jr. Hospital, at Maywood, Ill.

The U. S. Civil Service Commission,

Washington, D. C., announces open competitive examinations for:

Physiotherapy aide, applications to be on file at Washington, D. C., not later than July 30 and November 12, 1927.

Assistant medical officer, associate medical officer, medical officer, and senior medical officer, applications to be rated as received at Washington, D. C., until December 30.

Dr. Richard H. Holt,

Of the class of '25, University of Virginia, Department of Medicine, after a year at Marion, Maryland, has located at Middleburg, Va., where he is associated with Drs. Spitler and Selby.

The American Board of Otolaryngology

Conducted an examination at Washington, D. C., on May 16 and 17, and at Spokane, Washington on June 4. Of the 142 men examined at Washington, D. C., 119 were passed and 23 failed to pass the examination. In Spokane, the number passed was 46, and the number failed was 6.

The next examination will be held in Detroit on September 12, 1927. The applications for examination should be sent to Dr. H. W. Loeb, Secretary, 1402 South Grand Boulevard, St. Louis, Missouri.

Dr. R. A. Vonderlehr,

Formerly of Richmond, Va., but now with the U. S. Public Health Service, will sail on July 26th for Europe where he has been detailed for a three years' service. His first station will be at Cobh, Irish Free State, where his work will be connected with national immigration and quarantine laws, particularly with the examination of aliens who intend to come to this country. Dr. and Mrs. Vonderlehr are spending the first half of July in visit-

ing relatives in Northumberland and Chesterfield Counties, Virginia.

Dr. R. M. Grimm,

Of the U. S. Public Health Service, will sail July 26th, on the "President Roosevelt" for Liverpool, England, where he is detailed for immigration and quarantine work. Dr. Grimm is a native of Winchester, Va., and an alumnus of Johns Hopkins University School of Medicine in the class of '08.

Dr. R. S. Griffith,

Of Basic City, Va., recently visited a son who lives at Arcadia, Fla., and reports a most enjoyable trip.

Dr. R. H. Fuller,

Recently of Clover, Va., has moved to South Boston, Va., and bought a home there which he has converted into a private hospital.

Institute for Doctors' Helpers.

The University of Virginia will hold its second institute for doctors' helpers in Washington Hall, from August 8th through the 12th. This institute, as well as one to be conducted for colored women at the Virginia Normal and Industrial School at Petersburg from August 1st through the 5th, is to be conducted by trained lecturers from the State Board of Health. The purpose of the courses is to teach women such elementary principles of nursing as may qualify them to act as bedside helpers when trained nurses are neither available nor absolutely necessary. The courses are designed so that they may be particularly helpful in training women to act in confinement cases.

The Medical College of Virginia,

Richmond, as a residuary legatee will receive from the Martha Allen Wise estate approximately \$130,000 for the care and treatment of patients at the St. Philip Hospital, a large modern colored institution owned and operated by the college for teaching purposes.

Dr. Leland O. Mauldin,

Greenville, S. C., who underwent an operation for appendicitis on June 10th, was well enough to resume his practice early in July.

The New York Polyclinic Medical School and Hospital

Has opened its new Physical Therapy department, under the direction of Doctor Richard Kovacs, Adjunct Professor of Physical Therapy. This department will serve for post-graduate teaching of doctors and nurses, and for clinical work in connection with a large general hospital.

Dr. A. H. Deekens,

Richmond, Va., announces the removal of his offices to 2423 Park Avenue, this city, for the general practice of medicine.

Dr. H. G. Longaker,

Newport News, Va., was among those attending the Shriners' convention in Atlantic City, last month.

Doctors Among Town Officers in Loudoun County, Va.

At the recent elections in Loudoun County, Virginia, Dr. R. E. Caldwell was elected mayor of Waterford; Dr. W. D. Sydnor mayor of Hamilton; and Dr. H. A. Spitler a member of the council of Middleburg.

Dr. George G. Chiles,

Of the class of '26, Medical College of Virginia, who has just completed his internship at Stuart Circle Hospital, Richmond, Va., is visiting his parents at Strasburg, Va., for a short time before going to Durham, N. C., where he will be chief resident physician and surgeon at Watts Memorial Hospital.

Obituary

Dr. Edward Douglas Davis,

Retired physician, died at his home in Winchester, Va., June 15, rather suddenly, though his health had not been good for some time. He was born in Jefferson County, West Virginia, nearly sixty years ago. He first graduated in dentistry and later studied medicine, taking his medical degree from the University of Maryland, Baltimore, in 1894. He lived at one time at Harrisonburg, Va., and was then a member of the Medical Society of Virginia. His wife survives him.

Mrs. Amorette Barker Wilson,

Wife of Dr. Archer A. Wilson, an alumnus of the Medical College of Virginia, died at her home at Switchback, W. Va. on June 12th after an illness of two years, of brain tumor. Besides her husband, she is survived by her parents, Mr. and Mrs. James B. Barker, and four sisters, Mrs. Duncan Thomas, Misses Margaret, Jane, and Eleanor Barker, all of Richmond, Va. She was married December 29, 1923.

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DIAGNOSIS OF THE ACUTE ABDOMEN IN CHILDREN.*

By F. H. SMITH, M. D., F. A. C. P., Abingdon, Va.

The title of this symposium, *The Acute Abdomen in Children*, is an effort to avoid a fault common with medical books. The text-books describe disease as if the diagnosis were the known quantity, the given factor, in the equation, the symptoms and signs the unknown quantities. We are forced, therefore, to set up one or more tentative diagnoses, and then read through the list of symptoms and signs of these diseases to determine whether or not the case in mind fits one or the other diagnosis. At the bedside, the problem is reversed. The patient utters some complaint which he regards as the most important, or "presenting" symptom, together with a number of what may be subsidiary symptoms. To these we add what we may bring out by examination and laboratory research. Out of these facts we construct a diagnosis. In this sense, in the sense of a "presenting symptom", I take it, the phrase, *The Acute Abdomen*, is used in this symposium.

Even so, the title is still too general. The child with an acute abdominal condition doesn't say he has an "acute abdomen". In some way or other, he manages to convey to our senses what, nine times in ten, is his major complaint—his one sure bet—he has the bellyache! Hence, it is my purpose to follow the child's lead. I mean to take his complaint, pain, and through it approach the study of the differential diagnosis of acute abdominal conditions.

Pain is, of course, the expression of over-stimulation of sensory nerves. The child's nervous system may be said to be normally hypersensitive. That is, its adjustment or balance is delicate. It takes slighter stimuli to induce response in them than in the adult. Hence, we expect a child to react violently to what is perhaps a very trivial ailment; for example, a generalized convulsion from in-

testinal parasites. Abdominal pain is no exception to this rule. Possibly this hypersensitiveness explains why children pass so readily into shock with acute abdominal conditions and at operation.

Speaking generally, all hollow abdominal viscera have a double innervation: the vagus supplies motor impulses; the sympathetic, inhibitory. These antagonistic impulses must be nicely co-ordinated for perfect function. To empty any hollow viscus there must be relaxation of sphincter or lower segment at the moment of contraction of detrusor fibers. A perfectly adjusted balance keeps the digestive functions out of the realm of consciousness, except for a general sense of well-being. But maladjustment brings consciousness of pain. It is the same mechanism brought into play whether the disturbing factor be merely a mechanical irritant, like an undigested meal, an intestinal parasite, or a gall-stone; or irritation inducing spasm at a distant point, as the pylorospasm of appendicitis; or the primary spasm and final paresis of inflammation. In fact, there is little difference in the mechanics of any painful affection of hollow viscera.

The autonomic nervous system has a very extensive distribution outside of the abdominal cavity. It happens frequently that some disturbance arising within this extensive territory of the autonomies is referred to another part supplied by the same system. Hence, we may explain the complaint of abdominal pain in middle ear disease, and ear-ache with pneumonia.

I am aware of the fact that it is unorthodox, if not actually bad form, to present a paper without numerous citations from published articles, and without extensive bibliography. Nevertheless, I shall take the risk of such criticism, for I am persuaded that the nearer we can bring these sessions to the old-time "experience meetings", the more shall we be edified thereby. So I shall confess that the only "literature" I have consulted is that making up 13,846 case histories of the Johnston Memorial Hospital.

*Presented at the meeting of the Southwestern Virginia Medical Society, Pulaski, Va., March 24-25, 1927, as part of a symposium on "The Acute Abdomen in Children Under Ten Years of Age."

To be explicit: We have tabulated all the cases of children under twelve years who have uttered as the major complaint, acute abdominal pain. We may have missed some cases of acute abdominal disease in this way, as I shall explain later. As it is, we have found 146 cases. Children under twelve years constitute about 10.5 per cent of our cases, say 1,400. If so, about 10 per cent of all children, excluding the newborn, came to the hospital because of abdominal pain.

Associated with and revolving around the complaint of pain, there were all sorts of symptoms in all sorts of combinations. Nausea and vomiting are almost as frequent as pain; fever, constipation or diarrhea next; then headache, cough, urinary disturbance, pain and weakness in the lower limbs, vaginal discharge, even pain at such remote parts as the eye or the ear; or bleeding from the gums, eruption, and so on, through the list of symptoms covering the whole range of diseases. The very unexpectedness of certain symptoms associated with abdominal pain has more than once been the feature that has saved us from embarrassing situations.

We find that of our series the cause of the abdominal pain was intra-abdominal and surgical in 67.8 per cent. So that the chances are a little better than two out of three that a child admitted to a hospital with abdominal pain has some acute surgical condition within the abdomen.

Just here, let me caution you that there are at least two sources of error in following out our scheme of studying acute abdominal conditions by way of the complaint of pain. In the first place, we must remember that these cases are confined to children of all ages up to twelve years. It is notable that there is not a single case of simple intestinal colic in the list. Yet simple colic is the most frequent cause of abdominal pain in young children. A number of newborn babies in the hospital have had colic, as they have the world over. The reason they have not been included is because the baby cannot *say* it has a pain in the abdomen, and we are including only a declared complaint. The same reason explains any omissions that may have occurred of other cases. In them, though pain may have been present, we had to supply the complaint for the baby: Hence crying, abdominal distention, a palpable mass or vomiting and not

pain, may have been recorded as the major complaint. This reminds me that the youngest case of acute appendicitis we have recognized was in a baby of fourteen months, whose presenting symptom was diarrhea.

Then, too, remember these are hospital cases and, therefore, are one-sided. In a sense, this is a pity for two reasons. First, such studies as this make hospital men too dogmatic and critical. To say that every case of bellyache in children has a two-in-three chance of representing some acute abdominal emergency is foolish. Yet, thinking only of his own experience in hospital work the surgeon is all too apt to criticize the general practitioner when he misses or mistreats one of these cases that does have a surgical abdomen out of an untold number which have nothing serious. On the other hand, if it were the fact, and if that fact were known, that the chances were "fifty-fifty" that a child with pain in its abdomen had some serious abdominal emergency, probably each case would be investigated until one assured himself that the cause is trivial. We would then have fewer of the desperate surgical cases and more of the earlier ones.

At least, we can say that simple colic should be attended with simple colicky pain, perhaps gaseous distention, and nothing else, and should be relieved promptly by an enema.

At the risk of seeming to go out of my bounds: It is next to criminal to administer a purgative in the presence of acute abdominal pain; and it is altogether criminal to do so as a therapeutic test of the diagnosis, on the theory that if the purgative goes through, no obstruction or inflammatory paresis; if it fails to go through, there may be such a catastrophe.

Simple colic disposed of, injuries omitted because their nature is obvious, we find the following intra-abdominal conditions in our list: Acute appendicitis in its several phases: peritonitis, localized, regional or diffuse; intussusception; Meckel's diverticulum; strangulated hernia; tuberculosis of the mesenteric lymph nodes; sarcoma of the ovary; the several forms of intestinal toxemia and inflammation: typhoid and paratyphoid fevers.

This covers an experience of about sixteen years, and I suppose will very nearly represent the usual intra-abdominal conditions in childhood. If so, there are very few causes

which give rise to strictly surgical emergencies in the child's abdomen. Because of their frequency and because of their serious potentialities, two of these should constantly be borne in mind. Acute appendicitis and the several forms of acute intestinal obstruction are the great abdominal emergencies of childhood. Around the question as to whether or not the child has appendicitis or obstruction revolves the whole problem of the disposition to be made of him. For, if he has either, the case is imperatively and immediately surgical; whereas, if both these conditions can be eliminated from the possibilities, time may be taken for further study.

However time-worn the subject, we cannot harp too much upon appendicitis in children. So long as 81 per cent of children with appendicitis are admitted to the hospital with gangrenous or perforated appendicitis, abscess or peritonitis, someone is still blamable. I am frank to add that it is usually the mother who has erred. The story is so often repeated that it is only after calomel, oil, or salts has failed to act, or failed to relieve the pain, that the doctor is called. However, the fact remains that we have lost only one case of appendicitis operated upon before the appendix had ruptured, and that death could be fairly attributed to complicating pneumonia; whereas our mortality in the perforated cases is 22 per cent.

Of the acute abdominal diseases entering this hospital, 86 per cent were acute appendicitis, or the intussusceptive or adhesive type of acute intestinal obstruction. Differentiation between the two seems easy, but it is not always as easy as it seems. In appendicitis, we expect in the early course more fever, more tenderness and localized rigidity, a higher leucocytosis. In obstruction, especially in intussusception, the pain is more intermittent, there is more vomiting, more shock; if there are stools, they are apt to lose their fecal content and to be mucous or bloody; and there should be little or no fever, nor leucocytosis.

But, after all, differentiation between the two is of academic rather than practical interest. Both borne in mind as possibilities, we can think out the symptoms and signs we may expect. Acute abdominal pain associated with vomiting, moderate fever, shock, generally or locally tender and rigid walls, constipation, sometimes diarrhoea, and leu-

cocytosis, will generally stand for one or the other of the two surgical emergencies of childhood.

Hernia should present definite signs; tumors of abdominal or pelvic organs should be palpable; tuberculous mesenteric glands usually give pain through the adhesive peritonitis provoked.

Occasionally, even in childhood, we are confronted with the question of an early differentiation between acute appendicitis and the typhoid group of fevers. A mistake in either direction is serious. Typhoid fever in childhood is atypical oftener than typical. Acute pain is frequently the first recognized complaint. The Widal reaction appears too late to be helpful. Practically, the most positive differential clue is the blood count. Acute abdominal inflammation should be attended with leucocytosis; typhoid fever should not. Unfortunately, there are exceptions in each case.

I do not go far wrong when I say that some 33 per cent of children admitted to the hospital with abdominal pain represent mistakes or doubts in diagnosis. This is the number whose trouble was outside the abdomen, or, at least, non-surgical. The great majority of these children would not have been sent to the hospital had the physician not thought, or feared some acute surgical condition. It should not be forgotten that if the chances are two in three that the abdominal pain arises from acute surgical conditions within the abdomen, the chances are still one in three that it is extra-abdominal, or extra-surgical, at least. There is about a 33 per cent chance of error in accepting abdominal pain at its face value, at least in childhood.

Of our series, about 29 per cent of these exceptions were due to infections of the upper urinary tract; about 29 per cent to general infectious disease; 23 per cent to pneumonia; 7 per cent to spinal or cord disease; the rest were scattered.

Ureteral pain is usually referred by the child to the abdomen. An intermittent abdominal pain associated with fever higher and more irregular than that of most abdominal diseases; a cloudy urine in which are suspended purulent looking bodies: call to mind the possibility of that condition loosely called pyelitis. Trite as it sounds, no child should

be submitted for surgery until its urine has been examined microscopically. Paradoxical as it is, we wish sometimes we had never looked at its urine. For, if pus is present, we may be set right or we may be misled in diagnosis. A little pus, even red cells and casts, may accompany acute appendicitis; and the more virulent the attack, it seems, the more apt is this confusion to arise. It is just as true, and introduces just as much bewilderment, to admit that a violent case of "pyelitis" may have no pus in the urine at some one examination. The pus is temporarily dammed back. A saving sixth sense sometimes comes to the rescue and sets us straight.

We all know why the child should refer to its abdomen pain originating in the chest or spine. The abdominal walls are supplied on the one hand by branches communicating with the lower intercostals supplying the parietal pleura and the outer half of the diaphragm; and, also, by branches coming off directly from the lower thoracic and lumbar cord. It is a well known law of nerve pain that it is referred to its peripheral termination. The child, therefore, refers the pains of its chest and back to the abdomen.

Whether or not the pneumonic patch can yet be demonstrated, we are very suspicious of an abdominal diagnosis when the child has a flushed face, visible waving of the alae nasi, its respiratory rate is disproportionately rapid, and its leucocytosis higher than the average in acute abdominal inflammation. It is not often that attentive observation fails to bring out a patch of pleurisy at least.

As a rule, the only difficulty in diagnosis in the spinal cases arises from failure to look at the back. A definite kyphos, spastic spinal and, possibly, leg muscles, pain and tenderness radiating around the left flank as well as the right, should make the diagnosis of abdominal pain in such a case certain. In this series there is a very interesting case of bilateral herpes zoster of the abdominal wall in a young child.

All of us know, too, the frequency of complaint of abdominal pain at the onset of practically any one of the acute infectious diseases. It was a common source of chagrin during the influenza epidemic, for instance, to refer a case of influenza for operation. So we have had referred cases of acute tonsillitis, lymphadenitis and lymphangitis, bronchitis,

rheumatic fever and Devil's grip. Two of the cases are especially interesting. They were instances of Henoch's or abdominal purpura, fortunately saved from operation by the presence of purpuric spots on the surface. Had it not been for the presence of these spots, we would almost certainly not have thought of the special blood examinations necessary to determine the diagnosis.

And so there is no easy or certain rule of diagnosis. The game would lose much of its interest, if there were.

The conclusion is a very obvious one to all of us in the abstract; namely, there can be no diagnosis until a complete history has been obtained, a thorough examination made. If, in the individual case, the child be literally stripped and examined from head to toe, then diagnosis in pediatrics will likewise be stripped of much of its difficulty.

George Ben Johnston Memorial Hospital.

SURGICAL TREATMENT OF THE ACUTE ABDOMEN IN THE CHILD UNDER TEN YEARS OLD.*

By W. C. CAUDILL, M. D., Pearisburg, Va.
St. Elizabeth's Hospital.

Fortunately, the child under ten is not subject to all the acute surgical conditions peculiar to the abdomen of the adult. But among those that do occur are numbered some of the most serious and most disastrous in the entire realm of surgery. Gastric and duodenal ulcer, acute cholecystitis and diseases of the adnexa are rarely found in the child under ten. On the other hand, acute appendicitis, intestinal obstruction, general peritonitis and abdominal injuries occur frequently. Strangulated hernia and acute pancreatitis are observed less frequently.

As a general rule, the young child is considered a poor surgical risk. This is accounted for in part by a number of anatomic and physiological factors more or less peculiar to the child. The relatively high position of the caecum may make it possible for a ruptured appendix or an appendicular abscess to be placed high in the abdominal cavity from which infection is more serious. Occasionally the excessive mobility of the colon is undoubtedly favorable to intussusception. On account of the short omentum,

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a perforated appendix that otherwise would have become a walled off abscess may result in a general diffuse peritonitis. The process of digestion and metabolism in the child is delicate and easily upset. The adjustments of water and mineral salts in the tissues may be disturbed by slight influences about which as yet little is clearly understood. The inefficiency of the child's heat regulating apparatus, the undeveloped state of the autonomic nervous system, which is often oversensitive and poorly controlled, and the unstable circulatory system, all play a part in making surgery of the young child more hazardous.

APPENDICITIS.—This is by far the most frequently acute surgical condition of the abdomen of the child, and no subject has been more freely and thoroughly discussed. The mortality rate and the time for operation have received more attention than the technic of the operation. It is now fairly well settled that the safest method of treatment is operation at the earliest possible time after the diagnosis is made and that, irrespective of the number of days that have elapsed since the onset of symptoms. However, it must be freely admitted that occasionally a case which is localizing may result fatally if interfered with; and also, if the conservative method of treatment be adopted, some lives will be lost as a result of the delay. The course fraught with the greatest danger is hard to determine. If it could always be accurately determined whether or not the infection is definitely localizing, then the choice of procedure could be more readily made. But again, it must be admitted that this cannot always be done, even by the surgeons of greatest experience; hence, we are forced to rely upon our surgical judgment and the individual merits of the case.

We frequently see a child brought in to the hospital with a history of an attack that started several days ago. The chances are that a correct diagnosis of acute appendicitis was made in the beginning of the attack, and that immediate operation was advised by the attending physician. But there were extenuating circumstances and after a strong argument with the parents the physician acquiesced and the chance was taken to leave the child alone and hope the attack would soon pass off. But the attack did not pass off, several

days elapsed, and now the picture is that of a critically ill child. The child is probably a blond, very pale and with pinched expression. The temperature is subnormal, and the blood count is normal or below with a slight increase of polys. The abdomen is distended with more or less rigidity and tenderness over its entire area, being intensified in the right lower quadrant. It is evident we are dealing with a ruptured appendix with general diffuse peritonitis and that nature has utterly failed in every attempt at localization. It is from such cases as this that the mortality is usually drawn. Should this child be operated upon as soon as it enters the hospital? It has been our custom in the past to do so, and we believe it is the same in most of the hospitals throughout the state. But I believe that instead of operating on a child of this type as soon as it enters the hospital, it should first be put to bed in a Fowler position, stomach washed if it is vomiting, heat applied externally, dextrose given intravenously and by proctoclysis, and hot fomentations applied over the abdomen. After several hours, or perhaps several days, if continued improvement is noted, opening the peritoneal cavity under local anesthesia and inserting drainage will give the child the greater chance for recovery.

But of course, how much greater would have been the chance for this child if operation had been done within the first few hours after the beginning of the attack?

The high mortality rate of appendicitis has been recently pointed out and emphasized by Willis and others. It is evident the mortality is still too high and that no appreciative reduction has been noted in the past few years. Effective reduction in the mortality rate will not depend, half so much, upon whether the child is operated upon as soon as it enters the hospital or a few days afterwards, as it will upon operation within the first few hours of the attack. If a vigorous educational campaign were carried on emphasizing the fact that it is vitally important that the child be operated upon not only during the first attack, but within the first few hours of the acute attack, to my mind it would do more to lower the mortality rate than any change in the method or technic of the operation. The attending physician should clearly point

out the dangers of delay, and stubbornly hold out for immediate operation.

The technic for appendectomy, both for the simple and complicated case, is now fairly well standardized. Therefore, I do not deem it necessary to go into detail on this subject. I should merely like to emphasize a few points already well known.

Great care should be exercised to avoid injury to any nerve, lest wasting of the muscle fibers involved be caused and a hernia result. I try carefully to preserve the small nerves that are frequently isolated in separating the muscle fibers of the rectus. The abscess or infected area should be carefully and thoroughly screened off from the rest of the abdominal cavity to avoid actually extending an infective focus that has already become limited or definitely circumscribed. So far as possible, all raw surfaces must be covered with peritoneum as there is a distinct risk of consequent intestinal obstruction due to adhesions. When an abscess forms around a perforated appendix, lying in front of the ileum in the center of the abdomen, a very dangerous condition is produced. In this position it is important to do the minimum of breaking down of adhesions but the appendix should be removed in the majority of cases. If the abscess be behind the end of the ileum, it is very likely that the condition may be accompanied by obstruction of the end of the ileum, which is a serious condition.

The question of drainage has undergone considerable change during the last few years. The peritoneal cavity is now being closed with much more boldness than formerly; however, there are eminent authorities who warn against this procedure. Cope says "We have tried the method of closure of the abdomen without drainage in cases of perforated appendix which seem more suitable than any others for such treatment and we have regretted it nearly every time. We therefore consider that the risk of drainage is less than no drainage, for the cases referred to were such as would, in our experience, have given no trouble with drainage." Our experience, coincides with that of Cope and we feel that it is usually better to drain these cases.

INTESTINAL OBSTRUCTION.—There is perhaps no condition that the surgeon is called upon to treat that presents a more grave and disastrous emergency than that of intestinal

obstruction in a young child. What has been said about the urgency for early operation in acute appendicitis holds good for intestinal obstruction with ten-fold more emphasis. The danger of the condition increases, almost with geometrical progression, with every hour that elapses before operation. Moynihan says "It is not too much to say that in a consecutive series of twenty cases of average intensity, the condition disclosed at operation will show that in at least fifteen operation has been too long deferred". The greatest precaution should be observed in the use of morphine in the beginning of these cases. The free and injudicious administration of morphine is responsible for many a disastrous result in cases of acute obstruction.

There are two main factors to be considered in the treatment of every case of intestinal obstruction. The first, and of lesser importance, is the mechanical block in the bowel. The second, and unquestionably the more serious, is the septic absorption from the intestinal tract. The higher the obstruction, the more virulent are the toxins, and the greater the prostration and poisoning produced by them. In operating upon these cases, three factors must be kept constantly in mind:

1. To relieve the obstruction.
2. To deal with any damaged bowel.
3. To combat toxemia.

Gentleness, speed, dexterity and judgment, all must be brought into play if the surgeon is to be successful in his operation for intestinal obstruction. Before starting the operation, every means possible for combating shock should be at hand. As soon as the peritoneum is opened a search is made for the obstruction, and if blood-stained fluid escapes, the cause is usually strangulation of a coil of intestine and this will be found most frequently in the pelvis. If the fluid is clear, the block may not be so easily located, and if not uncovered after a short search, special care must be used in exploring the internal openings of both inguinal, both femoral, and the obturator canals, as well as the duodenojejunal and retrocecal regions, the foramen of Winslow, the common mesentery and the meso-sigmoid. With the obstruction found and released, two important questions must be settled at once: first "does any bowel need resection?"; second, "should an enteros-

tomy be performed?" In many cases it will be easy to determine whether the bowel should or should not be resected. The difficult cases are those in which the bowel appears almost black when released, but which under treatment by warm saline gradually recovers its circulation, and to a certain extent its elasticity, but still is far from normal. The characteristics of healthy bowel are a pink color, a glistening peritoneal surface, and elasticity. If intestine which has been strangled does not fairly quickly regain these three characteristics, it is generally wiser to resect it.

When it is impossible to relieve the obstruction, and unwise to do a lateral anastomosis, then it is necessary to relieve the acute symptoms by means of an enterostomy. Or the obstruction may have been successfully relieved and on account of the severe toxemia it may be wise to do an enterostomy in order to drain the foul material from the intestine and avoid flooding the system with the virulent toxins. It must be remembered, however, as Moynihan points out, that by reason of the enterostomy the patient may rally from his prostrate or even moribund condition, while an ensnared loop of bowel, a volvulus or an intussusception may be progressing steadily toward gangrene. He says the operation of enterostomy, therefore, though undoubtedly a life-saving measure to be remembered and employed when circumstances dictate, is, nevertheless, one to be used with reluctance, to be considered only in the last extremity of the patient's distress.

It will require too much time to give in detail the different techniques of intestinal resection, and I therefore merely wish to say that every surgeon should have in mind a pretty definite program which he proposes to follow in performing this operation. We have found it very helpful to operate a dog house in order to keep the technique constantly fresh in mind, and at the same time have much practice in intestinal suturing. We would recommend this to other small clinics who do not do a great deal of this work.

It was a hot day and eight cars were waiting their turn at a filling station. The last one was a steaming little rattler. Finally it got its turn, and the peevish attendant yelled: "How many gallons?"

The driver of the thing held up one finger. "Say," bellowed the attendant, "what are you tryin' to do? Wean it?"—(Selected).

OUR OBSTETRIC PROBLEM.*

By L. A. CALKINS, M. D., PH.D., University, Va.

Pregnancy and labor is a physiological process. Should we challenge such a statement? Well, we might.

There are in Virginia each year five hundred mothers and over five thousand babies who lose their lives as a result of this so-called "physiological process". Such a loss of life is hardly consistent with the terms "normal" or "physiological". As students we were told that there was no such thing as a normal pregnancy, or else our teachers handled the subject by merely failing to define a normal pregnancy. In the last fifteen years obstetric knowledge and investigation has made truly remarkable advances. However, the mortality rates for both mothers and babies have not materially decreased in that time. What can be the reason or reasons for this lack of improvement? It must either be that the people at large, knowing what should be done, have failed to take advantage and make proper use of their knowledge, or it must be that the people at large have not become acquainted with the facts, and that the medical profession has failed to extend this knowledge to the people. I think you will agree that, in general, the latter supposition is more nearly correct than the former. The medical knowledge of the general public has, however, been greatly improved in the past ten years along all lines. Obstetrics has come in for its share, and people today are asking for more and better maternity care and are demanding more of the profession in this respect, in so far as their knowledge and pocket books will permit.

We cannot over-estimate the good results from the syndicated talks of Drs. Evans and Copeland appearing in *The Daily Press*. Public health organizations by their clinics and free literature have also done a world of good. The individual physician, on the other hand, has been a bit backward in educating his own clientele and the general public in his own community because of his fear that people would consider him to be advertising his work or his fear that he would be overstepping the bounds of medical ethics. Ways and means have, however, been found in some few localities whereby, through radio talks or

*Read before the South Piedmont Medical Society, April 19, 1927, at Lynchburg, Va.

public lectures, sponsored by local medical societies, people have been given maternal welfare instruction, sometimes in the case of radio talks without announcing the name of the speaker. Perhaps the most concrete and effective education of the public, when employed, has been the individual physician's advice and instruction to his own private patients. This advice is, and always will be, given the closest consideration and obedience by the individual patient.

Just what do we now know, of a useful nature, that we did not know fifteen years ago? There are three things of major importance that are largely developments of the last fifteen years.

First, it has been shown that, if one will employ the rectal examination as a routine measure in place of the vaginal examination, he will reduce his incidence of puerperal sepsis by one-half. If we have only half as many cases of septicemia, we will probably have only half as many deaths. This would mean in Virginia a saving of seventy-five to a hundred mothers a year.

Second, we have learned that, if we will take the blood pressure and do a urinalysis on our pregnancy cases once a month throughout the first seven months, and more frequently in the last two months, we can reduce the incidence of severe pre-eclamptic toxemia, nephritic toxemia and eclampsia by three-fourths to four-fifths. This would mean a saving of one hundred to one hundred and twenty-five mothers a year in Virginia. It would also mean a saving of about four hundred babies a year.

Third, we have learned that, if we will treat all cases of syphilis during pregnancy, nearly one hundred per cent of such babies will be born alive and well. This would mean very little saving in life as far as the mothers are concerned, but would constitute a saving of nearly a thousand babies a year in this State.

Very simple facts these three, easily handled—and yet, in general, not sufficiently appreciated. We have all heard a physician say that his patient was not suffering from any toxemia because he had examined her urine six or eight weeks previously. It is well known that most toxemias become fully developed within a period of two to four weeks. Moreover, I have seen several patients with severe toxemias, whose blood pressure was not

over 140 systolic, and many other women with blood pressures of 160 and 170 who had little or no toxemia. The difference between these two classes obviously is that the first group had *normal* blood pressures of 100 to 110, whereas the second group had *normal* blood pressures of 160 to 170. We must, therefore, if we are to detect early toxemias, have several blood pressure readings on each individual early in her pregnancy so that when a toxemia appears later in her pregnancy we can detect the *change* in her blood pressure. It is this change in the blood pressure rather than the actual height of the blood pressure which is so important.

The syphilis problem is a very simple one if we will just remember that it is often impossible to diagnose syphilis from either history or physical examination. The answer is obvious. We cannot know that syphilis is present in such cases without the help of a Wassermann test. I do not mean to say for a moment that the Wassermann is thoroughly reliable. Especially is this true of the so-called "partially positive" or "two-plus" Wassermans. The repeatedly four-plus Wassermann, however, is not often to be doubted, and it would be far better to treat all four-plus Wassermann cases than to allow any material number to go untreated. The State Board of Health is affording us an excellent service in this field.

The use of the rectal examination as a routine measure during labor speaks for itself. True, it is a little more difficult to become expert in the use of the rectal examination than it is to gain proficiency in the use of the vaginal examination. It is also true that one cannot *always* rely entirely on his rectal examination findings, and finds it necessary to do an *occasional* vaginal examination. It is a fact, however, that every physician who has done a large number of rectal examinations comes to prefer this method as a *routine* procedure, and therefore would not consider doing a vaginal examination except in the rare case where it becomes necessary.

I would consider the above named three points as the most important developments of the last fifteen or twenty years. I might add that we are still not taking the greatest advantage of our knowledge gained previous to this time. An accurate diagnosis of the presentation and position of the child and

accurate pelvimetry will beyond doubt decrease the mortality from the so-called "accidents" of labor, mal-presentation, prolonged labor, and disproportion. This would mean a saving of twelve hundred to fifteen hundred lives per year in this State.

I once heard obstetrics defined as "that branch of medicine which has for its purpose the obtaining of live, healthy babies with as little injury to the mother as possible". If we are to practice this branch of medicine to the best advantage, according to this definition, and in the light of our present knowledge, it would seem obligatory that we must do the following things on *every woman* who comes to us for care during pregnancy and labor:—

- (1) Careful history and physical examination.
- (2) Accurate internal, as well as external, pelvic measurements.
- (3) Wassermann examination.
- (4) Blood pressure and urinalysis once a month in the first seven months, twice in the eighth month, and once a week in the ninth month.
- (5) Limit the vaginal examination to the unusual case where it is necessary and employ, as a routine measure, the rectal examination.
- (6) Determine the presentation and position of the child at frequent intervals in the latter part of pregnancy in order to avoid the abnormal presentations as well as the unfavorable presentations as far as possible.

When we do all of these things and do not omit any one of them, we can readily differentiate the normal from the abnormal cases, and thereby decrease our present high mortality. We have not, however, discharged our whole duty to our patients and to the public in general until we have educated them to the point where they will know how to do their part in reducing our present high maternal and infant mortality.

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THE TREATMENT OF FRACTURES OF THE SPINE.*

By C. S. LAWRENCE, M. D., F. A. C. S., Winston-Salem, N. C.
Lawrence Hospital.

Our experience with fractures of all parts increases with the progress of civilization. Good roads and national prosperity enable one out of five of us Americans to own automobiles. Many of us can own a flying machine and practically all can afford a ride on a passenger or freight train. We are naturally a nation of travelers, and the faster we move the better pleased we are.

The spine comes in for its share of damage, and it is with fractures of this structure that I propose to deal. During the past seven years my associates and I have dealt with thirteen fractures of some part of the spinal column, to wit:

Third cervical vertebra	1
Fourth dorsal vertebra	1
Sixth dorsal vertebra	1
Twelfth dorsal vertebra	1
Second lumbar vertebra	1
Third lumbar vertebra	2
Fifth lumbar vertebra	1
Transverse process, 1st lumbar vertebra ..	1
Transverse process, 1st, 2nd and 3rd lumbar vertebrae	1
Transverse process, 2nd, 3rd and 4th lumbar vertebrae	1
Fourth sacral segment	2

We have followed the plan of operating on all cases of fracture of the spine where there is cord injury manifested by paralysis. Laminectomy was performed five times in this group of six cases that had paralysis following injury.

The sixth case, a boy, aged sixteen, fell from a tree, landing on the buttocks, and was unconscious for an hour. There was loss of bladder control for three weeks, but no paralysis of legs. He came to us four months later, run down in health, with deep cough, and evening temperature 103. There was marked kyphos at the first and second lumbar vertebrae, with an old fracture through body of fifth lumbar; no paralysis, no abscess; there were moist rales at base of both lungs. The spine was stretched, and cast applied. Temperature was reduced, and cough relieved, and he was discharged from hospital on twentieth day, to return for further treatment. One year later roentgenogram showed first and second lumbar vertebrae healed, no kyphos,

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the fifth lumbar slightly deformed, but healed. I am of the opinion that this case belongs to the class described by Kummel, and later by Baker, of Ann Arbor, and called "Kummel's disease", a condition following an injury to

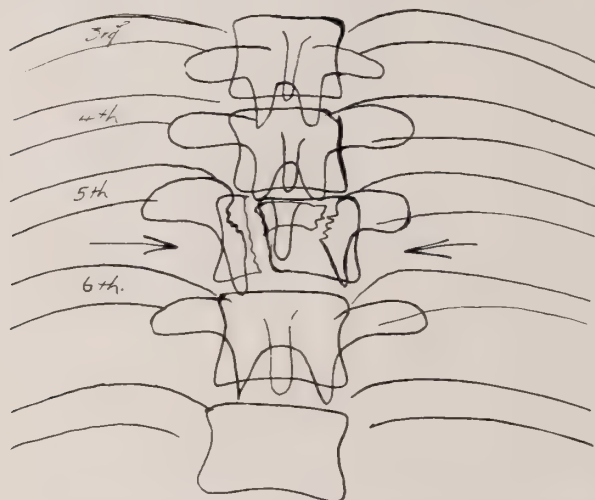


Fig. 1.—Fracture through sixth dorsal. Diastasis of the sixth and seventh vertebrae, with rupture of the pleura.

the spine, coming on after a few weeks or months, characterized by pain, disability, local signs of bone injury, especially kyphos. This patient is now well (four years after injury) and working daily.

Of the five cases operated on by laminectomy,

one died six hours after operation. One shows no improvement, neurologically.

The death: a young man, aged twenty-three, with fracture of third cervical vertebra, the result of diving, paralyzed from clavicle down. Laminectomy followed by autopsy showed complete severance of the cord.

The patient that shows not improvement: Woman, aged twenty-four, was struck by an automobile, fracturing the sixth dorsal vertebra, causing complete paralysis below, associated with compound fracture of right tibia and fibula at ankle, and compound fracture of fibula just below right knee. Operation re-

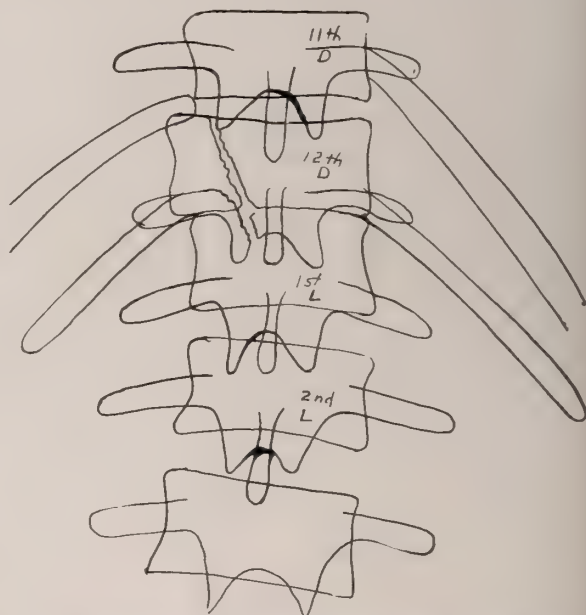


Fig. 3.—Fracture of twelfth dorsal. Laminectomy. Can walk with aid of crutches. Good control of bladder and rectum.

vealed fracture of sixth dorsal vertebra, diastasis of sixth and seventh dorsal vertebrae, rupture of capsular ligament, dislocation of seventh ribs with opening into the pleura, both sides of the spine. A few days later, gas gangrene developed in the foot and leg, necessitating amputation just below the knee. The patient now (two years after injury) is completely paralyzed from seventh segment down; otherwise, she feels well, gets about in rolling chair, and keeps herself occupied by hand work. (Figures 1 and 2).

The other patients upon whom operation was performed are—One: Fracture of twelfth dorsal with complete paralysis below. Regained control of bladder and rectum and can



Fig. 2.—Two years after injury, paralysis from sixth segment down.

walk with aid of crutches; sexual function normal—four years after injury. (Figure 3).

through sacral segments. No case had paralysis, and all recovered.



Fig. 4.—Fracture of third lumbar. Laminectomy. Can walk with aid of crutches. Bladder and rectum normal. Eighteen months after injury.

Two: Fracture and dislocation of third lumbar vertebra; complete paralysis below; regained control of bladder and rectum; can stand alone and walk with aid of crutches; sexual function normal—now eighteen months after injury. (Figures 4 and 5).

Three: Fracture of third lumbar vertebra; complete paralysis below; regained control of bladder and rectum can walk and work as laborer—now seven years after injury.

Of the other seven patients in this report, one had fracture through body of second lumbar vertebra, with severe scalp wound; no evidence of cord injury. Cast applied the seventh day after injury (on his own responsibility) and he left the hospital in a truck and has not been heard from since. He was a rum runner and preferred a quiet retired sequester for his convalescence.

Four: Fracture through body of fourth dorsal vertebra, with fracture of skull; no manifestation of cord injury; made a good recovery.

There were five cases of less serious fracture, three fractures of one or more lateral process of lumbar vertebra, and two fractures

TREATMENT

Upon admission, these patients are made as comfortable as possible. A careful physical examination is made to determine, if possible, the location of the fracture. Roentgenograms are made until we are satisfied as to the existence of a fracture and its location. If there is cord injury to the extent of paralysis, we operate as soon as the condition of the patient will allow. The cord is exposed by removal of the spinous processes, laminar fragments of bone and blood clots, making sure that all pressure is removed. It is better to go from one to two vertebra above the lesion. We have not made an effort in any of our cases to suture the cord; in fact, we do not open the dura, depending upon palpation and inspection for sub-dural pressure due to clots. We believe that the risk of infection and subsequent meningitis, due to opening the dura in the presence of so much trauma, is greater than the chance of sub-dural pressure due to



Fig. 5.—Eighteen months after injury; see also Fig. No. 4.

hemorrhage. The wound is closed in layers with catgut, one cigarette drain down to the cord, and skin closed with linen. The patient is placed on a firm bed, no cast, frame or other restraining apparatus being used. The patient is placed in the care of an intelligent, energetic nurse, who firmly believes, along with the surgeon, that the patient can be saved. The position is frequently changed, every four hours during the day and every six hours during the night; the back and all paralyzed parts

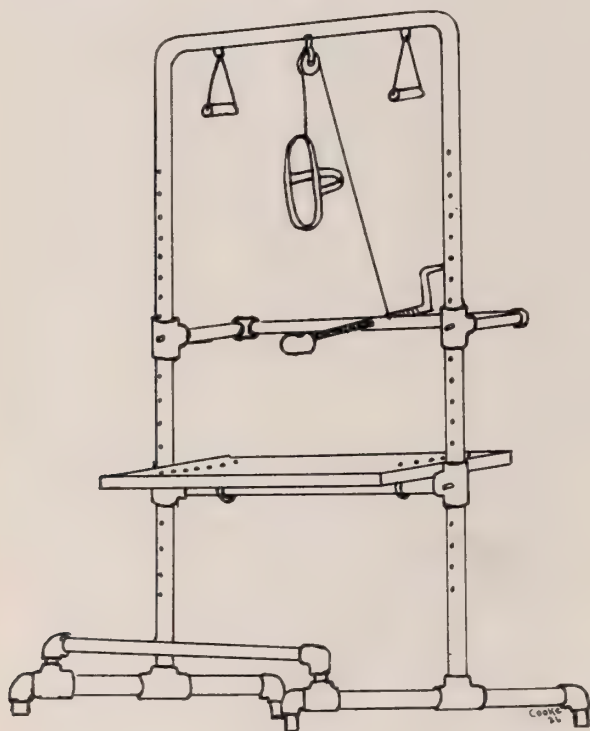


Fig. 6.—Frame devised by Dr. G. C. Cooke, Lawrence Clinic, for stretching the spine in application of cast.

being bathed at each change of position. The legs are not allowed to cross one another and the heels receive careful attention. The bladder and rectum are under constant vigilance. Allow the patient to go twelve hours and, if he does not void, catheterize under the strictest aseptic precautions. If pus appears in the urine, irrigate the bladder, gently, with 2 per cent solution of hot boric acid. It will do no harm to look into the bladder occasionally with the cystoscope to survey the condition of this viscus. The rectum is kept clean by daily injections of hot soap solution, and frequent digital examinations are made to be sure that impaction of feces does not occur. Keep the patient and bed dry and fresh. The

drain is removed on the sixth to tenth day, and the stitches in the skin removed when the judgment of the surgeon will permit. If the patient does well, he is gotten up at the end of the third to sixth week, his spine being stretched on a "Cooke frame" (see Figure 6) and a cast applied from hip to axilla, after which time he is allowed up in rolling chair. In a few days he may go home, to return monthly for inspection and adjustment of cast. If all is well, the cast is removed entirely at the end of three to four months.

Under this regime, not one of our cases developed decubitus ulcers in the hospital, and only one developed them after going home. The longest stay in hospital in this series was sixty days, the shortest twenty-eight days, this, of course, including the cases showing paralysis, who were operated upon.

If bed sores develop, the scene changes and the case becomes more serious, and the stay in hospital is much prolonged; however, in the most severe type of ulcer the patient's life must not be despaired of. I refer to the case reported by Walter C. G. Kirchner, of St. Louis, S. G. O., June, 1923, to show what can be done with a case apparently impossible. "Keep on keeping on" (Riley), and we will eventually make the patient and ourselves happy.

CASES OF LESS SERIOUS FRACTURE

It is our opinion that all fractures of the spine above the sacrum, it makes no difference how slight, should be treated with the cast until firm union has taken place. Hospitalization is seldom necessary in fractures of the spinous or transverse processes, unless other injuries exist. The two cases of fracture through the fourth sacral segment were treated by a well-fitting pelvic binder with good results.

In conclusion, let me emphasize:

First: Make a most careful examination of all back injuries, especially roentgenologically.

Second: Laminectomy should be performed in all cases of paralysis.

Third: Careful nursing and frequent change of position while patient is confined to bed are important.

Fourth: Close attention should be given to bladder and rectum.

Fifth: No cast or restraining apparatus should be used until patient is able to be up

in rolling chair; then cast should be applied in sitting position with spine stretched.

Sixth: Require patient to wear cast until firm union has taken place, determined by roentgenogram.

Seventh: Exercise and massage will hasten muscle tone.

VON JAKSCH'S DISEASE AND SECONDARY ANEMIA OCCURRING IN TWINS WITH REPORT OF CASES.*

By THOMAS D. JONES, M. D., Richmond, Va.

In order to emphasize some of the points that I wish to bring out in connection with these cases a brief discussion of the subject might be profitable.

"Anemia Infantum Pseudo-leukemia" or von Jaksch's disease, was mentioned by Gretzel in 1867, but the first clear clinical description of the condition was given by von Jaksch in 1889. He believed that he was dealing with a primary blood condition accompanied by enlargement of the spleen and liver and a definite blood picture pathognomonic in its nature which was not leukemia but which might at any time degenerate into a leukemia similar to that found in adults. Careful study of the condition since von Jaksch's original publication has, however, failed to show that any cases degenerate into true leukemia. Some French investigators at one time considered it a primary anemia closely allied to leukemia. Many British writers consider it a distinct disease at the present time, while most American authors consider it a secondary anemia with a relatively distinct clinical picture. Lucas and Fleischner state that it is probably a reaction to some type of infection, the organism not always being the same, but that the affect on the blood forming organ is the same. Sailer considers it a doubtful clinical entity, but states that in spite of that fact it is the most easily recognized of all the chronic forms of splenomegaly occurring in infants. Aschenheim and Benjamin apparently considered it a part of the clinical picture of rickets and suggested rachitic splenomegaly as the proper term for the disease. It is undoubtedly often associated with rickets, but may be secondary to tuberculosis, syphilis, intestinal catarrh; and a history of other conditions recognized as causes for secondary anemia in infants in general,

such as prematurity, twins, improper feeding and the like, is often obtained. The age at which it is practically always seen is from six months to two years. There have, however, been cases reported as old as four years. The exact cause is apparently obscure.

Prognosis.—Porter and Carter state that recovery takes place in from sixty to seventy per cent of the cases. Holt and Howland considered the prognosis very grave. Of sixteen cases coming under their observation, twelve were known to have died and the other four were lost sight of. Lucas and Fleischner state that the prognosis should be very good, but that the infants show little resistance to intercurrent infections. Death may occur from the disease itself, but is more often due to some intercurrent infection.

Symptoms.—There is a slowly progressive pallor which often becomes extreme. A petechial rash is often seen in the advanced cases. The superficial lymph nodes are often moderately enlarged, but this symptom is by no means constant. The liver is found to be enlarged to a moderate degree in about fifty per cent of the cases. Splenic enlargement is a constant finding, and it may be enormous, filling the entire left side of the abdomen. The enlargement is generalized and the organ feels firm and rounded on palpation. There is no tenderness. There is often emaciation which may be extreme, although some cases may appear fairly well nourished. The infants are apathetic, showing little interest in their surroundings; the appetite and digestion are poor. The blood picture, while subject to many variations, is fairly characteristic. The majority of cases show a leucocytosis of from 20,000 to 50,000, although there have been cases reported in the literature with a white cell count as low as 5,800 and as high as 80,000. There is more often a relative increase in the lymphocytes, but this is not constant. Monti states that the proportion of white cells to reds may be anywhere from one to one hundred or one to fifteen. Eosinophiles are sometimes slightly increased. The red cells are usually around two million or under. There is great irregularity in size. Nucleated reds are often found in considerable numbers. The hemoglobin may be from fifteen to eighty per cent.

Treatment.—The work of Bunge has shown that the human infant is born with a reserve supply of iron in the liver intended to last

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until he can take food containing more iron than the small amount found in milk. It has also been shown that the greater part of this reserve is stored during the last three months of intra-uterine life, so that the premature baby is born with a storage deficiency. L. W. Hill has found that infants fed on exclusive milk diet after eight months often develop severe anemia. Therefore, normal infants should have iron conveying foods added to the diet after six months. The principal foods suitable for this purpose at this age are egg yolk, prune sauce, and spinach. Liver pulp and scraped beef are highly valuable in older infants. Desanctis adds egg yolk to the formula of premature infants as young as two months. It has been found that an infant one year old requires two milligrams of iron daily. It is difficult to make up a diet suitable for that age containing that much iron without the use of one or more of the above articles, so that, as a prophylactic or active therapeutic measure, diet is perhaps the most important thing to be considered. Rapid improvement has been observed following transfusions. Inorganic iron in some form is of value in some cases. Bass has found that in those cases of anemia in infants not due to infections, inorganic iron is of great value.

The conclusions reached from a study of the following cases coincide with the views of most American observers, that the condition is not a distinct clinical entity, but rather a secondary anemia with a distinct clinical picture.

CASE REPORTS

Case 1.—R. J. J., white female, age twelve months. Was twin, born two and a half weeks premature. The birth weight was around six pounds. Delivery was normal; baby was normal at birth, father and mother living and healthy. Two brothers and two sisters living and healthy. Developmental history was normal. Was breast fed for six weeks; was then taken off the breast and put on formula of cow's milk dilution with Mellen's Food until eight months old, when other foods were started, but were given very irregularly. Baby did not take other foods with relish, so that the principal feeding to the present time has been cow's milk with Mellen's Food. Mother stated that baby's appetite was very poor and that she could not get her to take anything but milk. The baby had apparently always

been well up until three weeks ago, when she became very fretful and irritable and appeared to have "cold in the chest" which was the chief complaint at this time. Physical examination: Baby was fairly well nourished, weight 19 pounds 3 ounces; skin and mucous membranes very pale; six teeth had erupted, superficial lymph nodes were very slightly enlarged; anterior fontanel open about one ince; posterior fontanel closed. Cranial bosses were not prominent; there were no epiphyseal widenings; there was slight beading of ribs. The throat was mildly inflamed; breathing was somewhat "stuffy," but the lungs were negative. Heart sounds were rapid, but no murmurs were heard. Spleen was palpable about one and one-half inches below the costal margin, was firm and rounded, but not tender. Liver was palpable about one inch below the costal margin, abdomen was slightly distended. Temperature was one hundred. There was a petechial rash over the chest and abdomen.

Blood examination: The white cell count was fourteen thousand, polys sixty-five per cent, lymphs thirty-four per cent, eosinophiles one per cent. The red cell count was 1,880,000; there was marked irregularity in shape; hemoglobin was thirty-five per cent.

Child was put on a suitable diet, and feeding schedule which included liver pulp, spinach, scraped beef, egg yolk and fruit juices, and five grains saccharated carbonate of iron three times a day. The case was seen again one week later, at which time the mother stated that the child had continued very restless, and that she had been unable to get her to take the foods ordered. She had lost four ounces in weight, had a very irritable cough and was very restless. At this time the red cell count was 1,800,000, white cells 16,200, sixty-nine per cent polys, thirty per cent lymphs, one per cent eosinophiles. Hemoglobin was twenty-seventy per cent. The throat was considerably inflamed and a few scattered rales were heard over both lungs. The ears were negative; the temperature was 101.2. The baby had obviously lost ground in the past week and had evidently gotten up an acute upper respiratory infection. In view of those findings it was thought that a transfusion would offer about the best hope for tiding the case over this infection. Baby was sent to a hospital and a transfusion of 100 c.c. of mother's blood was given by the Unger method

(by Drs. Fitzgerald and Richardson). There was a mild reaction following the transfusion, but the baby looked much better about twelve hours later. Color was much better and the hemoglobin had gone up to thirty-eight per cent. A few hours later temperature went up to 105.5. The respiration became very rapid and definite signs of a pneumonic process developed in lower left lung. The condition grew progressively worse and death occurred about twenty-six hours after the transfusion.

Case 2.—P. J. J., white female, age twelve and one-half months, twin sister to *Case 1*. Mother stated that baby had been very restless, had a very poor appetite, and she felt that her condition was very similar to that of her sister. The feeding history was identical with that of above case. She was fairly well nourished; weight was twenty pounds five ounces; skin and mucous membranes pale; anterior fontanel was open about three-quarters of an inch; posterior fontanel had closed. The superficial lymph nodes were not enlarged. Six teeth had erupted. There was no pronounced evidence of rickets. The chest was negative. Abdomen was soft and flat; liver and spleen not palpable; no masses were felt and there was no tenderness.

Blood examination: Red cell count 2,620,000; white cell count 6,000; hemoglobin thirty-eight per cent. The baby was put on a suitable diet including iron-conveying foods, and was given saccharated carbonate of iron in 5 grain doses t.i.d. Was seen again two weeks later and was greatly improved. Had gained one pound and one ounce in weight, appeared much happier, and was taking food well. Blood examination at this time showed red cell count 3,500,000, hemoglobin fifty-seven per cent. Two weeks later she had gained fourteen ounces. The red cell count had gone up to 4,000,000, hemoglobin sixty-five per cent.

In both of these cases there was a clear history of several distinct factors known to have a tendency to cause anemia in infancy, such as twins, prematurity, and inadequate diet. Inasmuch as the same causative factors were operative in both cases it would seem reasonable to suppose that the conditions were primarily the same and that the difference in the clinical aspects of the two cases was dependent upon the degree of the process.

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THE RECTUM AS A FOCUS OF INFECTION.*

By W. L. POWELL, M. D., Roanoke, Va.

When we consider the variety of conditions that have been found to be the result of focal infection, and a great many others which may be aggravated by it, no possible source of such infection should be neglected. The most frequent and obvious foci are the teeth, tonsils, sinuses, intestinal, and genito-urinary tract. These are usually thoroughly investigated, but the rectum is seldom considered in such an investigation, even though it is a region in which we would expect often to find such condition.

When we consider the abundant bacterial flora, the colon, staphylococcus and streptococcus normally present, and which become pathological when a break is made in the mucous membrane, and the frequency with which this region is subjected to trauma, the wonder is that it is not more frequently the cause of systemic infection.

The anatomy of the rectum, especially the abundant blood and lymphatic supply, suggests the strong probability of any local foci becoming general. The mucous membrane of the lower end of the rectum is gathered together into longitudinal folds called the columns of Morgagni. The base of each column joins with the dentate margin to form the upper limit of the anal rectal line. The tops of these columns extend upward and are lost in the smooth mucous membrane of the lining of the rectum. These columns vary in number from five to twelve. Stretching between them are thin folds of mucous membrane called the semilunar valves of the rectum. Extending downward behind these folds are de-

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pressions or pockets, called crypts of Morgagni, which normally contain some mucoid secretion, and pathologically act as a trap for bacteria and fecal material.

The pectinate line separates the internal and external sphincters in the anal canal. The rectum receives its blood supply from the superior, middle and inferior hemorrhoidal and middle sacral arteries. The veins correspond in name and distribution to the arteries, but return the blood through two distinctly different channels. The internal or superior hemorrhoidal vein collects the blood from the rectum proper and empties it through the mesenteric vein into the portal circulation. The middle and external veins and the middle sacral vein collect the blood from the external surface of the rectum and anus and empty it into the general circulation through the vena cava. The pectinate line forms the division between these circulations, but there is undoubtedly considerable communication between the two systems (Tuttle).

The pectinate line also forms the division line between the two systems of lymphatics. Those from above the line drain into the sacrolumbar glands, and those from below drain into the inguinal glands. This is of considerable clinical significance when considering metastasis in malignant disease.

According to W. A. Fousler (University of Minnesota), the common types of infection, either alone or in combination, located in the rectum are: first, general proctitis, usually associated with colitis; second, infected hemorrhoids; third, ulceration of the rectum; fourth, cryptitis; and, fifth, sinuses leading off from the rectum.

General proctitis is easily diagnosed through the proctoscope, and may be due to a variety of causes.

Infected Hemorrhoids.—Most proctologists concede that a thrombosed vein in the rectum furnishes an ideal media for promoting infection. Either the toxins from the infective bacteria, or the bacteria themselves readily gain entrance into the general circulation.

Ulceration of the rectum is, of course, due to bacterial infection, and is easily diagnosed, but a thorough search must be made of the entire mucous membrane, as they are frequently overlooked, especially between the valves of Houston.

Cryptitis.—This condition is best searched for with a bivalved speculum. They may appear normal, but if a probe is bent on itself and slipped into these crypts it will often be found that they extend downward beneath the mucous membrane of the anal canal for a considerable distance and act as a trap for bacteria, and form ideal conditions for their growth and development. It is from these infected crypts that abscesses most frequently develop, which result in sinus formation. These sinuses leading off from the rectum frequently open into these crypts, or they may extend downward and outward. Sinuses occasionally extend upward beneath the mucous membrane and open above. Cryptitis is believed by Terrell to be responsible for a large percentage of cases of pruritis ani.

At the Hospital for Joint Diseases in New York City, where special attention is given to the diagnosis and treatment of focal infection, a series, numbering hundreds of cases, has been collected in which rectal foci were responsible for arthritis of the monarticular and polyarticular type (Goldman). The colon bacillus was the most frequent offending organism, with an admixture of staphylococcus and streptococcus. Bacteria were seldom recovered from the distal lesion, the symptoms being produced by the action of bacterial toxins. When pus was present in the affected part, a leucocytosis was present, but was not found if the trouble was caused by the toxins alone. The bacteria developed in the foci in the rectum showed a selective affinity for the joints, and occasionally the heart.

The most common types of rectal foci found in this series were ulcerated internal hemorrhoids, blind internal fistula, and acute and chronic ulceration of the anal canal.

J. W. Visher, in the United States Veterans' Bureau Bulletin, believes that "infection of the organs supplied by the portal vein may reach the liver by way of the portal circulation, thus causing hepatitis, which is spread by the lymphatics to the gall-bladder, bile ducts and pancreas." He reports two cases of pancreatitis and diabetes, whose conditions were markedly improved by surgical treatment of the rectal conditions.

Pennington, in the *Journal A. M. A.*, volume 87, No. 25, states that all hemorrhoids are either infected or potentially so.

Sheaffer has recently reported a metastatic brain abscess, the foci being an old stricture of the rectum. Post-mortem showed the bacteria in the brain abscess to be the colon and streptococcus.

In our search for foci of infection, let us not blame it all on the obvious sources, but examine the rectum thoroughly, and remember that any lesion of the rectum may at any time become a focus. It is just as important to correct these lesions as it is to remove infected tonsils and abscessed teeth, which are potentially foci for systemic infection.

SOME OBSERVATIONS ON INTESTINAL OBSTRUCTIONS.*

By T. J. HUGHES, M. D., Roanoke, Va.

The subject of intestinal obstruction is a problem of abdominal surgery which has engaged the most serious discussion of surgeons of this and other countries of civilized nations for centuries. Without recounting the multiplicity of opinions and statistics of the leading men on the subject, this brief paper will deal only with a short outline of some of the principles underlying this extremely grave condition and which have been impressed upon the writer by experience and observation, as to the time and method of resorting to operative interference.

The symptoms of intestinal obstruction, ranging from constipation to gradual or sudden inability to secure a bowel movement, are so well standardized and familiar to all that, for the sake of brevity and repetition, their description will be omitted.

The paramount question in the mind of most men today is when to operate, and what to do when we do operate. As already stated, the symptoms, particularly of acute or complete obstruction, are so familiar that a diagnosis is readily made by the attending physician, and usually the only decision resting upon the surgeon is how long to temporize with enemas, etc., before opening the abdomen. To my mind, the responsibility of when it is safe to close the abdomen without draining the intestine by enterostomy is much greater than the decision when to operate.

In intestinal obstruction you have an interruption of the motor function of the upper

gastro-intestinal tract, whether it is due to adhesions following surgical operations, to malignant or inflammatory infiltration, or to exhaustion.

Early lavage in functional ileus is indicated to remove a gross weight which must interfere with the recovery of tone in the bowel. Lavage should anticipate vomiting, which is itself exhausting to the patient. When lavage and enemas fail to effect a thorough movement and relieve the distention, valuable time may be lost in waiting to open the abdomen.

Reports of the following cases will serve to emphasize my reason for this paper:

Case 1.—A child, three years old, was admitted to hospital with complete obstruction. A large sausage-shaped mass could be easily outlined following the course of the descending and transverse colon. A diagnosis of intussusception was made.

This case is interesting particularly for the length of time of its illness, which extended over a period of several months, and its rapid recovery following operation. It had been treated by several doctors during its illness, and its condition had been diagnosed as colitis.

The little patient was so nearly starved to death, not having been able to retain sufficient nourishment for months, we feared it would not survive an operation. Operation was decided upon, however, as the only hope of relief. Upon opening the abdomen, the cecum was found to have traversed the ascending, transverse and descending colon, until the appendix presented in the rectum. A second invagination of the descending colon had occurred.

The invaginations were reduced without difficulty, and the abdomen was closed hurriedly by through and through silkworm-gut sutures. The baby was able to retain nourishment as soon as it reacted from the anesthetic, and its recovery was so rapid its mother was insistent upon taking it home the next day following the operation, and, against all advice, left on the third day, at which time the baby was taking nourishment freely and its recovery was uneventful.

Case 2.—A young woman in the twenties developed intestinal obstruction following an operation for appendicitis. The abdomen was opened, the adhesions freed and the obstruction was apparently relieved.

The abdomen was about to be closed, when a brief discussion by the surgeons resulted in an enterostomy with small rubber tube being

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left in for drainage of intestinal contents. The patient lingered between life and death for weeks before a thorough bowel movement occurred, and, although her recovery was long and tedious, she would certainly have died had the abdomen been closed without an enterostomy.

Case 3.—Man, well past middle age, developed symptoms of acute obstruction, was desperately ill and an immediate operation was decided upon. The obstruction was due to a band producing a kink in the lower third of the small intestines. Soon after the obstructing band was severed, the patient passed per anus a large quantity of liquid fecal matter and his condition was temporarily improved. Alarming symptoms developed, however, the following day and the abdomen was re-opened. The cecum and part of the ileum were filled with fecal matter and the intestines seemed to be paralyzed. A cecal anus was made, which failed to function after twenty-four hours; a sound was introduced into the ileum for several inches and this started a free drainage of the intestines, after which the patient made a rapid recovery.

Case 4.—This patient, a man about thirty years of age, was admitted for intestinal obstruction of two days' duration. No movement of the bowel could be effected. There was a history of obstinate constipation since operation for appendicitis in an Army Hospital during the World War, and once or twice he had had attacks of incomplete obstruction, requiring repeated enemas to move bowels. Operation was advised and performed immediately. Complete obstruction was found near the ileo-cecal junction by bands of adhesions. These bands were resected and the intestines, when freed, immediately became inflated, and the upper abdomen, which had been tightly distended, became soft.

My inclination was to do an enterostomy to evacuate the gas and drain the distended intestines. The man was in such good physical condition, and it was so apparent that the obstruction had been relieved, that we decided to close the abdomen without drain. For twenty-four hours all went well and one or two large liquid stools followed operation. Alarming symptoms gradually supervened, and the abdomen was reopened and an enterostomy done, but with no avail, and the patient died on the third day from toxemia.

These cases are selected as belonging to different classes of physical risks. I am of the opinion that Cases 2 and 3 would have died without an enterostomy, and that Case 4 might have recovered had intestinal drainage been instituted sooner.

My experience and observation have led me to the following conclusions:

First: That valuable time is often sacrificed by endeavoring to relieve obstruction by numerous drastic enemas.

Second: That we should never postpone opening the abdomen until fecal vomiting has occurred, which should be classed as a post-mortem sign rather than a pre-operative symptom.

Third: That every case of obstruction should be placed in a hospital during the first day of its onset, and treatment directed toward placing the patient in the best possible condition for operation.

Fourth: That an enterostomy should be done at the primary operation in every case where operation is delayed and the intestines are distended as secondary operations in intestinal obstruction are grave procedures, and rarely accomplish the results desired.

ETHMOIDITIS.*

By FRED E. HAMLIN, M. D., M. Sc. (Medical), Roanoke, Va.

It is my purpose to present a few of the many symptoms and diagnostic points of ethmoiditis which general practitioners may find of value in their work.

The infections of the nasal sinuses are more frequent than we realize, and no part of the body can have an infection more securely concealed.

Let us first refresh our memories as to the location and anatomy of the ethmoid labyrinth. The ethmoid is not a true sinus and we call it the ethmoid capsule. It is likened unto a sponge and is in the nose proper, whereas the true sinuses—maxillary, frontal and sphenoidal—are contained in hard bone and empty into the nose through their respective ostia.

The ethmoid labyrinth occupies all that portion between the lateral plates of the orbit and approximately one-half the space between the floor of the nose and the cribriform plate. The continuation of the crista galli downward

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corresponds to the perpendicular plate of the ethmoid. The ethmoid and maxillary sinuses are present at birth; the frontal appears about the sixth year, while the sphenoid develops during the first year. The number of cells within the ethmoid at birth are between two and four, which later in life will number from six to twelve.

The ethmoid is compared to a box and is separated into five divisions by curved lines or lamellae. The third division is the heaviest and three times as thick and is called the lamella of the middle turbinate. The second lamella goes anteriorly and is called the uncinate process, and coming off from this is the first lamella, or bulla of the ethmoid capsule, and the fourth is called the superior turbinate.

The blood supply of the ethmoid capsule is from the superior nasal branch of the sphenopalatine posteriorly and anterior nasal and ethmoid arteries above. The venous anastomosis is very important to remember as the return circulation is in direct contact with the dural veins. The anterior and posterior ethmoidal veins accompany their respective arteries into the orbit and then empty into the ophthalmic vein which empties into the cavernous sinus.

The ethmoidal veins anastomose with the longitudinal sinus through the small perforations in the cribriform plate. This direct anastomosis accounts for the high mortality in meningitis following ethmoid infections. Skilern says he never saw a case of meningitis of nasal origin recover.

The physiological function of the sinuses is to heat, filter and moisten the inspired air and act as a resonator for the voice. Old observers believed the sinus cavities were to lighten the bony framework of the head, but the authorities of today have disapproved of this theory.

The normal sinuses are protected, first, by the action of the cilia of the mucosa with a movement towards the osteum, and, second, by the secretory glands in the mucosa which have an inhibitory power over the invading organism. The above is not true if there is interference with aeration and drainage.

The middle turbinate or third lamella is not a true turbinate, does not contain swell bodies, and is called the pendant portion of the ethmoid. This turbinate is the keynote in treating ethmoid infections. Suppose we compare the ethmoid capsule with a box and the middle turbinate we will call the lid. On removing the lid we expose the different lamellae

or divisions of the ethmoid between which are located the small cells; those of the anterior group connect with one another and drain into the hiatus semilunaris underneath the anterior end of the middle turbinate, and those of the posterior group drain posteriorly above the middle turbinate.

As to the pathological classification of ethmoids, we must consider acute and chronic types, acute catarrhal, acute suppurative, chronic catarrhal or hyperplastic, chronic suppurative with or without polyp formation. Infections are classified as local and general but most of the local become general under favorable conditions. All infections must begin their process as local but few remain local.

The acute catarrhal is nothing more than we first find associated with any attack of acute coryza lasting over a week. The acute suppurative is exceedingly rare and is found complicating some of the infectious diseases. Rarely do we see the acute cases, as the family physicians are the first consulted and naturally prescribe the initial treatment. In chronic hyperplastic ethmoiditis mechanical obstruction seems to play the most important role. This may be brought about by frequent attacks of colds, each attack causing a thickening of the mucosa. For example, one will have a cold and the cells that drain well will seem to be entirely clear. On the other hand, some of the cells will not be so fortunate as to have good drainage and the process of repair will be much slower. Perhaps by this time the patient has another cold, thereby throwing an extra amount of congestion on the cells that have not entirely recovered from the original infection. This condition favors the formation of polyps. The patient after recurrent attacks of colds will give the symptoms of a chronic cold, and every exposure to draft, cold or getting wet will bring on violent attacks of sneezing and profuse watery discharge from the nose with ocular symptoms. The sense of smell is more or less lost due to the blocking of the olfactory fissure which extends from the anterior superior part of the middle turbinate to the anterior wall of the sphenoid sinus.

Bronchial asthma is frequently associated with hyperplastic ethmoiditis and many cures of asthma have been reported after operation on diseased ethmoids. The American Laryngological Association had its first symposium on sinusitis in 1899, which was on "Diseases of the Ethmoid Region and Asthma."

Chronic suppurative ethmoiditis is usually associated with a suppurative process in one of the larger cavities although it can be present as a separate process. One of the frequent causes is forceful blowing of the nose during an acute coryza, forcing the infectious material into the ethmoid. During the summer season you will see many cases of ethmoiditis due to forceful blowing of the nose as a result of swimming and high diving. The discharge is always purulent and on inspection of the middle turbinate one will see it covered with crusts, which condition is caused by the drying action of the inspired air. The symptoms depend upon the virulence of the infection, the amount of involvement and question of drainage. There is no history of headache if the drainage is good, while, on the other hand, if it is the closed-in variety, the headache will be intense and diffuse in type.

A patient will sometimes seek advice regarding the condition of his throat as a result of the constant dripping in the nasopharynx. He will have either nasopharyngitis or laryngitis and will be constantly hawking and clearing the throat in an attempt to get up the down-flowing secretion. During sleeping hours this secretion is constantly pouring down the nasopharynx due to the position and relaxation of the patient. The major portion of this secretion is deposited on the dead spot of the pharynx, the area which has no cilia, and is coughed up as soon as the patient awakens. He will tell you it takes an hour to clear the nasopharynx of the tenacious secretion, occasionally producing nausea.

In the ethmoid infection we naturally expect the head pains to be of different character from those of the true sinuses surrounded by hard bony walls. Head pains with infection of the true sinuses come on and leave, as a rule, at a definite time, the position of the patient being the chief factor in the time of appearance. Headache from ethmoid involvement is usually over the parietal region, is dull in character and continuous in whatever position the patient assumes. Sometimes after the pain subsides the scalp remains sensitive to pressure. Another frequent location of ethmoid pain is over the root of the nose between the eyes. A patient will complain of pain, wedge-like in character, pressing apart the tissues. Deep seated pain in the eyes is pres-

ent only when stagnation or pressure occurs. Skillern points out the following pathological conditions as causative of headache:

First.—Swelling of the mucosa with nerve pressure;

Second.—Direct contact of mucosa with that of the opposite side, thus obliterating the sinus cavity or converting it into a slit-like aperture;

Third.—Absorption of toxins;

Fourth.—Stagnation in the sinus due to mechanical obstruction on the already inflamed mucosa;

Fifth.—Negative pressure within the sinus.

Skillern thinks this last cause has been exaggerated. Such terms as sympathetic and nervous headaches are misnomers and are rapidly becoming obsolete. Only a few years ago all sinus pains were called sun pains by the laity.

Dental headache due to diseased molar, pulp stone or a molar out of line may, by transmission of impulses through the trigeminal fibers cause a temporary congestion of the mucous membrane of the sinus, producing a pain very similar to that of a sinus. The discharge from the anterior ethmoid, frontal and maxillary cells will be found in the anterior part of the nares flowing from beneath the anterior tip of the middle turbinate and down over the anterior portion of the inferior turbinate.

Now, the question of differential diagnosis enters. We know that pus from either one of the above named sinuses will drain beneath the anterior tip of the middle turbinate. It is easy enough to pass a Lichtwitz's needle under the inferior turbinate into the antrum and irrigate with warm saline solution. If pus is absent, one can eliminate the maxillary sinus, but the presence of pus will necessitate going a step further. Have the patient return to the office in three or four hours and irrigate again. If pus is present this time, it is self-evident that it is coming from above as it is not possible for the mucous membrane to secrete pus so rapidly, and it must be due to a reservoir, either in the frontal or ethmoid. To eliminate the frontal, one considers the clinical picture with special reference to pain. The transilluminator may be of some value, though oftentimes misleading. In the majority of cases the frontal sinus may be irrigated, probably necessitating the infraction of the middle turbinate.

Now we have made our diagnosis of empyema of the ethmoid of the anterior group

and very likely there will be the same thing existing in the posterior group due to the thinness of the mucous membrane and the cell wall. If the posterior group is involved, one will see the discharge on the uvula and on the lateral pharyngeal wall. No nasal examination is complete without posterior rhinoscopy with the nasopharyngoscope. In the above condition a view of the posterior tip of the middle turbinate will show it to be bathed in pus. Owing to the close relationship of the posterior ethmoid cells and the sphenoid, we naturally expect both to be infected at the same time. The frequency of the combined infection of the posterior cells and sphenoid is more or less dependent upon the depth of the sphenoethmoidal recess. If this empyema remains very long, naturally we expect polyp formation. Due to the gravity of the secretion, the pendant portion of the ethmoid, the middle turbinate, is frequently the site for the formation of polypoid tissue. The uncinate process is the most common location for polyps, and these may extend far out into the nose, being attached only by a small pedicle.

Anosmia is frequent, due to the occlusion of the olfactory fissure and degenerative changes of the nerve filaments. Cacosmia is usually present and often is very disagreeable and embarrassing to the patient.

The appearance of the pharynx may be that of pharyngitis sicca, covered with tenacious grayish membrane which can be removed in one large mass with a pair of forceps. Sometimes pus will not be present but the lateral pharyngeal folds will be markedly congested, showing there is an infection in the nasopharynx. On examination of the larynx the arytenoids will be infiltrated and probably some thickening of the cords noted. In chronic hyperplastic ethmoiditis the discharge may be scant or profuse; often microscopically pus is absent. Skillern says "Absence of pus proves nothing—its presence diagnostic."

Our first thought is to examine as much of the ethmoid capsule as possible, inspect the middle turbinate and the mucous membrane of the septum opposite the anterior end of the middle turbinate. One will see definite tissue changes if there is a chronic hyperplastic ethmoiditis present. Adrenalin should not be used in the same examination as it causes too much bleaching of the tissue; cocain is preferable.

A sinus may contain muco-pus and be transparent to the X-ray; the mucous membrane may be polypoid without secretions, and the X-ray may or may not show this thickening, but in the hyperplastic type it acquaints one with the anatomical outline, whereas, in the purulent type it will show the number of cells involved.

The diagnosis of chronic infection of the nasal sinus is difficult when little information is obtained from the history, when obstruction prevents a proper examination, or when little secretion is present.

The complications of ethmoiditis may be many, even in remote parts of the body. According to Daland, "infected tissue no larger than a split pea is sufficient to cause fatal systemic disease and no relationship exists between the amount of infected tissue and the seriousness of the secondary disease." When one considers the close proximity of the eye to the ethmoid sinus, the thinness of the lamina papyracea, the direct anastomosis of the blood vessels and in addition the optic nerve and its vessels against the wall of a cell for a part of its course, its chance of escape would seem rather slight. The most frequent form of complication arising from suppurative ethmoiditis is orbital abscess as a result of rupture through the lamina papyracea. Abscess formation can occur through the ethmoid veins without perforation of the lamina papyracea. The lesions of the eye which seem to be frequently associated with sinusitis are optic neuritis, iritis, corneal abscess, phlyctenular conjunctivitis and ulcer of the cornea.

The theory of infection of the bronchi may occur through the lymph vascular system or by direct inhalation. The association of sinus disease with bronchitis or bronchiectasis is too common to be accidental. Many cases of chronic bronchitis are treated over a long period of time without determining the etiology. Sinus infection and acute bronchitis may develop simultaneously since the etiological factors are often the same.

Lorring T. Swain, of Boston, has been specializing in arthritis for fifteen years and he thinks the infection of tooth sockets and tonsils is only a secondary focus of infection, whereas the primary focus originates in the nose and nasopharynx. Absorption from the intestinal tract is nothing more than we would expect, due

to the continuous swallowing of the secretions from the nasopharynx.

Reginald Burbank, of New York City, who has revolutionized the treatment of arthritis from the vaccine standpoint, insists that the primary focus of infection is from the sphenoidal area.

We have been co-operating with Drs. Westcott and Hoover in following the combined treatments of Swain, Burbank and Pemberton, with special attention to the nasopharynx. In all of these arthritic cases we have found involvement of the ethmoid cells. In the preparation of his vaccine, Burbank requires specimens from the nose, nasopharynx, gums, tonsils and stools, the nose and nasopharynx being the most common foci of infection and the last to clear. Every case of infectious arthritis should, therefore, have a nose and throat examination in an effort to determine the focus of infection.

Sinusitis in infants will only be mentioned as it is not within the scope of this paper to discuss such an important subject. Pathological changes in the sinuses of children are the same as in adults. The symptoms are nasal discharge with obstruction with accompanying nasopharyngitis. Skillern believes the ethmoid sinuses are the most commonly infected in children, and all of these cases will show a general inflammation of the Schneiderian membrane. According to Dean, the maxillary sinus is the most frequently involved. He states that 85 per cent of the chronic cases of nasal sinus diseases have been cured by the removal of tonsils and adenoids without any other treatment. We all know that since attention has been given to tonsils and adenoids the sight of children with pus streaming from the nose is rare.

Treatment: Prophylaxis in general should be taught all patients in regard to head colds and the avoidance of forceful blowing of the nose when such a condition exists. We see few patients in the acute condition and the treatment would be that prescribed by the family physician. The patient should be ordered to bed and the body tissues depleted by free purgation. Sweat baths are often indicated. Ice-cap should be kept over the bridge of the nose and the usual prescription for colds given to make the patient more comfortable. If the above treatment is carried out, it will usually cut short the attack. Adrenalin in these cases

has a tendency to aggravate the condition even though it gives temporary comfort. One attack of ethmoiditis usually predisposes to a second attack, and it is essential to have good drainage. After a few days, if purulent discharge is present, warm saline irrigations should be given and daily tamponing of the nose with some silver preparation, known as the "Dowling Method." One should not tampon the nose with a silver preparation immediately after using saline solution.

In the more chronic types anatomical obstruction should be corrected. When the middle turbinate is disposed of, the ethmoid capsule should be treated conservatively for several months before attempting to do radical surgery. In the meantime, we can continue to use some form of tampon treatment in conjunction with gentle suction to cleanse the cells. If the process continues unabated in spite of our treatment, then we will have to resort to radical surgery. What will we do? If the entire labyrinth is involved, complete exenteration of all the cells is indicated. This should be done carefully and systematically, because radical operations do not always mean radical cures.

CONCLUSIONS

First.—Headaches demand thorough investigations.

Second.—Patients suffering with recurrent colds should have a nasal examination.

Third.—The examination of a patient suffering with chronic bronchitis should not be complete without examination of the sinuses.

Shenandoah Life Building.

TUMORS OF THE SMALL INTESTINE— REPORT OF A CASE OF ADENOCARCINOMA.*

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and
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It is an interesting and unexplained fact that the large majority of all tumors of the gastro-intestinal tract are confined to the rather narrow limits of the stomach and colon. We may well regard it as fortunate that the twenty feet of small intestine contribute only a small relative number. However, tumors of the small bowels are more common

*Read at the meeting of Ex-Internes' Association of St. Elizabeth Hospital, Richmond, Va., October, 1926.

than is generally supposed and are of more clinical importance than one would be led to believe from the meager space devoted to the subject in text-books of surgery and pathology. A discussion of their points of interest in the current medical literature supplies this deficiency to some extent.

BENIGN TUMORS

Of the benign tumors we have: adenoma, lipoma, myoma and fibroma for consideration. This arrangement is in the approximate order of frequency. In a review of the literature on benign tumors of the small intestine Dewis¹ reports a case of fibroma of the ileum and cites forty-nine cases of benign neoplasm of the small bowel. Adenoma occurred fourteen times, lipoma seventeen, and fibroma only twice. However, he does not include many cases reported under such vague and unqualified terms as "polypus of the bowel," etc. Since many of the pedunculated polypoid tumors are adenomata, this group is likely more common than his figures indicate. They are probably the most frequent of the benign tumors. It is certain that fibromata are very rare. The term "polyp" is an objectionable one, particularly as a title for a paper. As recently pointed out by Erdmann and Morris,² it is commonly used to imply "any pedunculated or sessile intra-luminary growth varying in size from a pea to a grapefruit". Adenomata are not uncommon in the colon and rectum, where they are usually pedunculated and spoken of as "polyposis of the bowel". They are relatively rare in the small intestine, occurring only fourteen times in a total of 127 cases collected by Dewis¹. Remarkable cases of diffuse intestinal "polyposis" are reported in which pedunculated adenomata are found throughout the gastro-intestinal tract from the stomach to the rectum. The adenomata are important because they are frequently the site of origin of carcinoma. Any of these benign tumors may occur at all ages. Some are probably congenital.

Spontaneous extrusion is an interesting phenomenon and occurs particularly in lipomata. Twenty per cent of Dewes¹ cases were thus expelled. Extraordinary cases of intussusception are reported in which spontaneous recovery follows the sloughing and expulsion of several centimeters of the intestine to which the tumor is attached. The obstruc-

tion produced by these tumors is usually incomplete even when invagination occurs; hence the possibility of extrusion and spontaneous recovery. This will also account for the chronicity of the symptoms.

These benign growths may long remain unsuspected giving few or no symptoms until intestinal obstruction or intussusception occur. Even these attacks may end by spontaneous recovery only to recur. In other cases symptoms of flatulence, constipation or diarrhea, or both, with spells of vomiting over a long period are described.

MALIGNANT TUMORS

Sarcoma. — Of the malignant tumors we have only sarcoma and carcinoma. While all types of sarcomata are reported, lymphosarcoma is most commonly encountered. Among ninety-nine cases Speese³ found them distributed as follows: Lymphosarcoma thirty-four; round-cell sarcoma forty-three; spindle-cell sarcoma thirteen; fibrosarcoma three; mixed-cell sarcoma one; myxosarcoma two; melanotic sarcoma one. As Speese³ remarks, many cases diagnosed as round-cell sarcoma probably belong to the lymphosarcoma group. The number of the round-cell group is then probably too high and the lymphosarcomata too low in the above figures. Sarcoma appears to be much less common than carcinoma. Bringing the literature up to date, Speese was able to find a total of only 101 cases in 1914.

Sarcoma is usually found in the lower ileum but may appear in any portion. It is even less frequent in the large than in the small bowel. We have seen one case in the wards of Grady Hospital (1924) of lymphosarcoma of the caecum. The primary tumor, removed at autopsy, was about the size of an egg. There were a few metastatic nodules on the intestinal coils and several cutaneous glands were enlarged. One of these was removed during life and showed lymphosarcoma.

Sarcoma begins as a localized thickening in the muscularis or submucosa which spreads between the layers usually leaving the mucosa intact. Ulceration often occurs but stenosis is uncommon. As the growth proceeds with thickening of the wall of the gut there may be excavation by ulceration within until the tumor presents a fusiform or aneurysmal di-

lation. This resemblance to an aneurysm has been noted by several observers. The main tumor in the case here presented is of this type although it is a carcinoma.

Sarcoma may occur at any age. Sterne's case, cited by Libman⁴, was present at birth and caused intestinal obstruction of which the infant died when five days old. While metastases are rare in the spindle-cell variety, they are often widespread in lymphosarcoma. Cases in children are said to metastasize early. Libman⁵ reports a case with metastases in numerous organs including the heart muscle. Intussusception occurred fourteen times in

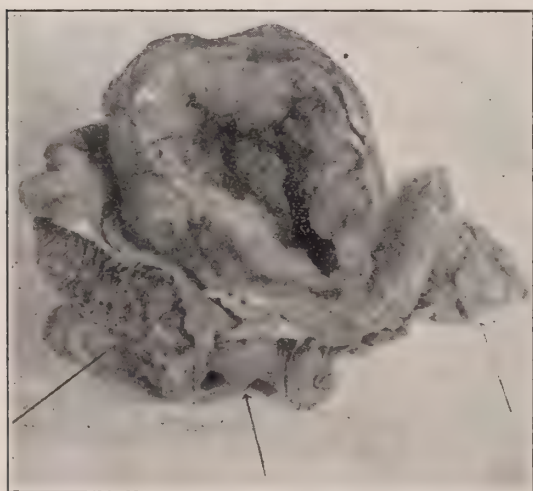


Fig. 1.—Multiple primary carcinoma of small intestine showing large ulcerating tumor and three smaller ones, with intussusception.

seventy-four cases which had been operated upon (Speese). Perforation is rare but has occurred. The growths are usually single but may be multiple.

Grossly, sarcomata are softer than carcinomata and often contain minute areas of necrosis or even gross caseous spots resembling tuberculosis. This confusion with tuberculosis has occurred both ways. The association with syphilis has also been noted, but is probably only incidental. In lymphosarcoma, microscopically the wall of the bowel is diffusely infiltrated with lymphoid cells, while the main tumor is made up of masses of deeply stained lymphoid cells. There is a soft, delicate, reticulated stroma with a moderate number of thin walled blood vessels.

As the symptoms and treatment of all malignant neoplasms are essentially the same they will be discussed together a little later.

Carcinoma.—The remarkable freedom of the small intestine from carcinomatous neoplasms is emphasized when we recall the frequency of cancer in the stomach and colon. Judd⁶ found during the same period at the Mayo Clinic only twenty-four cases of carcinoma of the small intestine as contrasted with 1,822 of the colon and rectum, and 1,689 of the stomach. This is less than the usual relative frequency. It is usually stated to represent about 3 per cent of intestinal cancer. Ewing⁷ states that about 8.5 per cent of all cancers occur in the intestinal tract; of this number 2.5 per cent are found in the small intestine. It increases in frequency as the stomach is approached above and the colon below.

More cases involve the duodenum than any other portion. In the twenty-four cases reported by Judd⁶, it was found five times in the duodenum, eleven times in the jejunum and six times in the ileum. In two cases the growths were multiple. It often develops on papillomata or "polyps", differing in this respect from carcinoma of the colon.

Carcinoma of the duodenum occurs as three well defined types: (1) Of the first portion following ulcer, (2) of the ampulla of Vater, and (3) as carcinoma of the third portion. About 70 per cent of the duodenal cases occur at the ampulla (Judd). Here they are often times papillomatous in type and frequently cause biliary obstruction. The definite relationship of ulcer and carcinoma here, as in the stomach, though probable, is still unproven. In the third portion, annular constricting lesions are found, giving the symptoms of pyloric obstruction. Misplaced islands of pancreatic tissue also give rise to carcinoma in this region.

In the jejunum and ileum, carcinoma arises from degenerating pedunculated adenomata, or less often as an annular or ring carcinoma. There is also a group of carcinoid tumors described by Lubarsch (Ewing). They are multiple, slowly growing, non-metastasizing tumors, and usually cause few or no symptoms. They may give rise to true carcinoma.

Metastasis is not common in carcinoma but does occur usually by direct extrusion. Judd⁶ mentions one case having a metastatic nodule in the liver. Intussusception and obstruction occur and are often a cause of death but, as noted in the other tumors, obstruction is often

incomplete and recurrent. Ascites is said to be more often associated with carcinoma than with sarcoma.

The microscopic picture is that of an adenocarcinoma or columnar cell carcinoma arising from the cells of the mucosa.

The symptomatology of these tumors is varied and diagnosis is difficult. However, a fairly definite clinical picture can be made out in many cases. The benign tumors may give no symptoms of their presence or only vague "intestinal indigestion" until intussusception occurs. In sarcoma and carcinoma, however, there is often the picture of chronic intestinal obstruction with recurrent attacks of cramp-like pain, distention, vomiting and audible intestinal gurgling and rumbling. Visible peristalsis may be observed. Constipation with attacks of diarrhoea may be present or either may occur alone. Loss of weight, weakness and progressive anaemia are fairly constant. A tumor in the abdomen is rarely noted as the first symptom. The duration of symptoms, while occasionally as long as three to four years, or as short as four to six weeks, is usually from three to six months. When located in the duodenum, symptoms of pyloric stenosis may be present with gastric stasis and vomiting. Jaundice may of course be found when the ampulla is involved. Adhesions to other structures often cause symptoms not related to the intestinal tract, as painful and frequent urination from pressure on the bladder. Even renal colic may be simulated, as in a case reported by Libman⁵. The palpation of an easily movable tumor in a patient with these symptoms is a diagnostic feature of importance. This was particularly true in the case here reported. However, because of their free mobility they may not be palpated until a rather large size is obtained.

X-ray of the gastro-intestinal tract helps to limit the lesion to the small intestine by ruling out pathology in the stomach and colon. In some cases the dilated intestinal coils with the valvulae conniventes are plainly visible. Or large accumulations of barium in the region of the small intestine in the six hour film may be seen. Occasionally irregular streaking and smearing of barium is observed in the small intestine.

Occult blood is often found in the stools but the gastric analysis rarely helps to establish the diagnosis.

The age incidence in carcinoma is about the same as in cancer elsewhere. In Judd's⁶ cases, the average age was about fifty years. Sarcoma tends to occur earlier in life and is often found in children. The treatment will depend entirely upon the individual case. Single benign tumors may be cured by simple resection and this should always be done to prevent possible malignancy. Resection of lymphosarcomata has been followed by apparent cures. Douglas⁸ reports a well authenticated case who was living and in good health five years after operation. Many cases have lived two, three and four years. However, recurrence is stated to occur in 95 per cent of sarcoma. Resection should also be done when possible in carcinoma as metastasis is less frequent and occurs later than in sarcoma. Cases of carcinoma are reported to have lived ten years after radical excision. Judd⁶ states that regional metastasis in the lymph nodes is no contraindication to resection. However, in cases with obstruction and in poor surgical risks, an enterostomy must be done first and the operation completed at another sitting.

Radium is probably of little value but X-ray therapy has been advocated by many, especially in lymphosarcoma. In advanced cases and multiple lesions, only palliative measures to relieve symptoms may be undertaken. Libman⁴ advocated the use of arsenic in all cases of lymphosarcoma but it would seem to be of doubtful value.

REPORT OF A CASE

This patient, a white female domestic, age 44 years, entered St. Joseph's Hospital, October 31, 1925, with a chief complaint of nausea and vomiting.

The *family history* was irrelevant.

The *past history* showed that she had had typhoid fever at the age of 15, influenza in 1919 and again in April, 1925. There were no other significant symptoms except as mentioned in the present illness.

During the past five months her menstruation had been irregular. She married at the age of 26 years, had eight children living and well. She had had one miscarriage. Two years ago she had a non-malignant pigmented mole removed from the back.

Present Illness: She had had an extremely poor appetite, "indigestion" and constipation for the past two years. She dates the

onset of her present illness from an attack of influenza in April, 1925. Shortly after this she began to have spells of nausea, vomiting, and cramp-like pains in the abdomen. A little later she noticed a mass in the left side of the abdomen which had gradually increased in size. She continued to grow worse, the nausea and vomiting increased. She complained of a throbbing pain in the left side of the abdomen, burning sensation in the stomach and headaches. She also noticed some yellow splotches on the neck and face and became extremely weak, nervous and lost some weight. There was light dyspnoea on exertion and cough without sputum or hemoptysis. She had nocturia, two to three. There had been no hematemesis or rectal bleeding. Previously she was treated at another hospital.

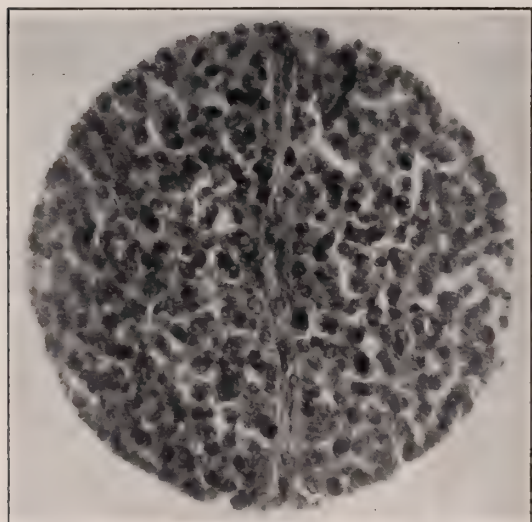


Fig. 2.—(High Power). Structure of large tumor and several smaller ones.

tal, September 14, 1925, where the mass was thought to be an enlarged spleen. The blood and spinal fluid Wassermann were strongly positive and she was put on anti-syphilitic treatment without improvement. She remained in this hospital thirteen days. The blood count then showed 3,690,000 red cells, hemoglobin 60 per cent, 9,950 white cells, with a normal differential count. The urine was negative. X-rays were taken of the genito-urinary tract, gall-bladder and a gastro-intestinal series. These showed the stomach and colon to be negative. The kidneys were well outlined. No gall-stones were found. In the left side of the abdomen was

a fairly well outlined soft-tissue mass extending from the costal arch to the crest of the ilium. It was of varying density, distinct from the kidney, and apparently contained gas.

Physical Examination: The patient was well developed but undernourished. Face pinched and pale. Mucous surfaces appeared anaemic. The eyes, ears, nose and throat were negative. Heart and lungs showed nothing remarkable. Blood pressure 118/80. The abdomen showed a slight fulness in the upper portion but there was no visible tumor. Palpation revealed an extremely tender and freely movable mass lying to the left of the umbilicus and extending from the costal border to the crest of the ilium. It was about the size of a large grapefruit. It was not only freely movable on palpation but shifted from the region of the umbilicus to the left flank with change of position. There was also some tenderness in both lower abdominal quadrants. The vaginal examination showed a foul purulent discharge, palpable Bartholin's glands, an eroded cervix and some infiltration in both fornices with tenderness on the left. Rectal examination was essentially negative. There was now 50 per cent hemoglobin, 2,800,000 red cells, and 7,800 white cells, with 74 per cent of polymorphonuclears. The nausea, vomiting and abdominal pain continued, she grew weaker and cachectic and died December 3, 1925, after one month in this hospital.

Necropsy was obtained only after the body had been embalmed, and was limited to the abdomen. The peritoneal cavity was opened by an incision from the ensiform cartilage to the symphysis pubis. The peritoneum is smooth and glistening. There is no free fluid in the cavity. The spleen is of normal size. The appendix is normal. The mesenteric lymph nodes are not enlarged. The liver seems to be slightly enlarged, but does not reach below the costal margin. The liver is pale yellowish in color, presenting quite an unusual appearance. This may be due, however, to the embalming fluid. Lying directly over the left kidney, is a large mass the size of a small grapefruit. The small bowel can be seen to enter the mass above and to emerge below. It is therefore a tumor of the small bowel. The transverse colon is adherent to the upper border of the mass, but does

not communicate with its cavity. The descending colon is attached to the mass laterally by fibrous bands. Going through the coils of the small intestine below this mass, there are found four other tumors involving the wall of the small intestine. They are of varying sizes all the way from slight induration the size of a coin up to a mass the size of a lemon. The continuity of the bowel is not disturbed by any of these masses. At other points, polypoid masses the size of an egg are found within the lumen of the small bowel, which do not involve the wall of the gut, but seem to arise from the mesenteric border. At two points there is beginning intussusception. The entire gastro-intestinal tract was removed from the pylorus to the rectum and preserved in the anatomical position.

PATHOLOGICAL REPORT BY EVERETT L. BISHOP,
M. D.*

Specimen: Small and large intestine: Preserved in sugar solution, after formalin fixation.

In the jejunum is a large mass, the size of a large grapefruit, through which the intestine goes. The mass is firm, rounded, and slightly nodular. The tumor cuts easily, revealing a smooth surface which is quite cellular, the center of the tumor showing the lumen of the gut, which is bile stained. There are no gross areas of necrosis or hemorrhage. There is no perforation. This mass is high up in the jejunum. Scattered along the intestine at various intervals are nine other tumors, four or five of which involve the intestinal wall, the others being well developed polypi. In two places, there is definite intussusception, without however, complete obstruction. The last polyp is near the ileocaecal valve.

Sections of the various tumors show a very interesting structure of a diffuse epithelial growth, the cells being large and medium sized spindle, rounded and polyhedral cells, with abundant cytoplasm, acidophile in reaction, and showing a relatively large and hyperchromatic nucleus. These cells appear in sheets, narrow, and also bulky strands, separated by narrow strands of connective tissues. In many areas there is a definite

tendency toward alveolar formation. Mitoses are quite numerous, and the vascularity marked. There are no areas of necrosis or other regressive change. Desmoplasia is lacking. Adjacent to one of the medium sized tumors, there is hypertrophy of the mucosa with marked epidermoidization of the epithelium of the glands, without however, marked proliferation. This is probably of inflammatory origin and not part of the general tumor process.

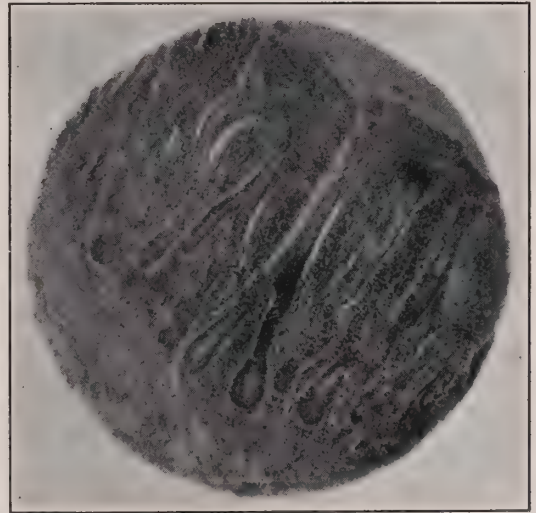


Fig. 3.—Inflammatory changes in the mucosa near tumor. Marked epidermoid changes in glandular epithelium without proliferation. Intense round cell infiltration between glands.

The above described structure appears not only in the large tumor of the upper jejunum but also in the smaller tumors lower down. The structure is definitely that of a malignant neoplasm and, without evidence of a malignant tumor elsewhere, must be taken as a multiple primary diffuse carcinoma of the small intestine. It is impossible to say whether the tumors were malignant at the beginning, or whether they began as benign polypi. It is possible that the original structure was that of adenocarcinoma, but the loss of growth restraint and increasing malignancy gives a more diffuse picture, where the tendency toward glandular formation is lost and replaced by a diffuse growth with only a slight tendency toward poorly formed alveoli.

SUMMARY

A case of multiple primary adenocarcinoma of the small bowel is reported.

*Pathologist Albert Steiner Ward for Cancer and Allied Diseases.

The incidence, etiology and symptomatology of tumors of the small bowel are discussed. From the careful study of a case keeping the symptoms in mind one should be able to make the diagnosis more often than is usually the case.

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SQUAMOUS CELL EPITHELIOMA OF THE BODY OF THE UTERUS—REPORT OF A CASE.*

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There are statistics that show that the uterus is first in the list of organs affected by primary cancer. Welch collected over 31,000 cases of cancer from the literature, of which 29.5 per cent were of the uterus and 21.4 per cent were of the stomach. Later figures show a predominance of cancer of the stomach and liver over cancer of the female generative organs. The uterus is still probably the most frequent seat of the disease in women. About 10 per cent of uterine cancers affect the corpus.

The frequency of uterine cancer is explained partly by its anatomical and physiological characteristics, especially its exposure to trauma and irritation. Cervices that have been repeatedly lacerated at childbirth, those that show a chronic endocervicitis and erosions are those that are prone to the development of malignancy. An etiological factor in the development of corpus carcinoma is the association with myoma, 10 per cent of which are combined with carcinoma.

The two main histological and clinical divisions of carcinoma of the uterus are, of course, squamous cell carcinoma of the cervix and glandular carcinoma of the body.

Ewing gives the following histological varieties of carcinoma of the body:

1. Malignant adenoma.
2. Papillary adenocarcinoma.
3. Alveolar carcinoma.
4. Adeno-acanthoma.

The first is the usual type; the second is a form assumed by certain tumors which probably arise from adenoid or polypoid forms; the third is rare, but some tumors show solid masses of cells forming alveoli and smaller cell groups infiltrating spaces and vessels. These structures are more aggressive than the malignant adenoma and are subject to degenerative changes which may lead to the diagnosis of round cell sarcoma. About the fourth variety which is the one under which our case has to fall, Ewing goes on to say that squamous cells may form a prominent element in adenocarcinoma of the corpus and in rare cases they predominate over the glandular structure and produce a true adeno-acanthoma. In some cases spine cells and keratohyaline granules, the criteria of true squamous epithelium, are present and also pearl formation. Very rarely all the characters of adult acanthoma are observed.

It is, of course, true that carcinoma usually is of the type of epithelium from which it arises, and it is for this reason that primary squamous cell carcinoma of the uterus is such a rare tumor. The cavity of the fundus is normally lined with high ciliated cylindrical epithelium, and carcinoma arising here is almost invariably of the glandular type.

The rarity of squamous cell carcinoma of the fundus is well shown by the fact that Cullen at the time of the publication of his book on carcinoma of the uterus was able to find but three authentic cases of this condition and had himself never seen a case.

Since that time, however, this type of tumor has attracted considerable attention, especially in Germany, and a number of cases have been reported.

Gebhardt, in 1892, was the first to report a case of primary squamous cell carcinoma of the fundus. Since then cases have been reported by Fraischlen, Kaufmann, Batchelor, Keith and others.

C. C. Norris, of Philadelphia, writing in the *American Journal of Obstetrics*, Vol. 56, No. 6, pg. 87, reports a case and reports work of others. Very free reference has been made

*Read before the Richmond Academy of Medicine, Richmond, Va., February 22, 1927.

to his article in the presentation of this case.

In explanation of the origin of this tumor various theories have been advanced. The squamous epithelium of the portio-vaginalis normally ends at the external os; above this point the canal is lined by columnar ciliated epithelium. The meeting place of these two types of epithelium is not a fixed point, however, and it has been thought that a very high extension upward may in some cases account for an epithelioma of the fundus. This seems probable in those cases originating in the lower part of the body, but could hardly account for a localized growth occurring at the fundus and surrounded by normal endometrium.

An extension upward of a cervical carcinoma would account for epithelioma in the fundus but in this case the cervix is not diseased.

Squamous or keratoid changes may take place in the epithelium of the body of the uterus, such changes occurring independently of a new growth. Leukoplakia uteri is a term often applied to this epidermization of the endometrium. It may occur after curettage, especially when the uterus has been treated with escharotics. It is reasonable to suppose that malignancy developing in such an endometrium would have the characteristics of an epithelioma.

Finally, since islands of squamous epithelium may occur in the normal fetal endometrium, it may be assumed that its occurrence in the adult is sometimes only a result of such early malformation.

No one of these theories satisfactorily accounts for all the cases.

The history of the case I have to report is as follows:

Miss M. S., age 57, white, nulliparous.

Family history good.

General previous history. Has been a healthy woman, never having had a serious illness.

Menstrual history.—Started at 14, regular every 28 days. Flow would last about a week and was somewhat too profuse. Dysmenorrhoea always present. Menstruation ceased in 1917 when she was 48 years old. After this there were several periods at irregular intervals with a scanty flow.

In 1917, a "D & C" was done, it being stated that she had catarrh of the womb.

Present illness.—She began bleeding from the vagina in April, 1925. The bleeding was quite profuse and was constant. She was referred by her physician to Dr. E. L. Flanagan for X-ray treatment.

Dr. Flanagan kindly gave me the following data about her treatment: "She was given treatment through three apertures, one in front, through the sacrum, and through the perineum. The first series of treatments was given May 23, 25, 26, 1925, the second June 22, 23, 24, the third August 6, 7, 8, the fourth November 11, 18, 19, the fifth April 19, 20, 21, 1926, and the sixth May 18, 19, 20, 1926. The patient was rather irregular in reporting for treatment after November, 1925. This was accounted for by the fact that she was made very sick after the treatments. The technique used in treatment was as follows: 136 KV, 5MA, 16" distance, $\frac{1}{4}$ mm. copper and 1 mm. aluminum filter, 35 minutes time."

The treatments alleviated the bleeding considerably.

Three months after the last treatment bleeding started profusely again.

She was admitted to the Gynecological Service at the Memorial Hospital, July 2, 1926.

Examination showed a rather emaciated looking woman, weight about 95 pounds. Several carious teeth and some pyorrhoea noted. No abnormal heart sounds heard, lungs clear. Some tenderness over lower abdomen but no masses noted.

The odor from the vaginal discharge was such as to make neighboring patients object to her presence.

Urinalysis was negative except for a trace of albumin and an occasional hyaline cast, and a few leucocytes.

Phenolsulphonphthalein functional test was 40 per cent for two hours. She had a hemoglobin of 70 per cent, 9,000 white blood cells, 74 per cent polys, 26 per cent lymphocytes, Wassermann negative.

Vaginal examination. Vagina admits one finger, cervix is short, very soft, and admits index finger. The fundus is slightly enlarged, is anterior and freely movable. The adenexal regions are apparently clear. There is a very foul bloody discharge noted. Some organized material protruding from the cervix was obtained and sent to the laboratory but this

turned out to be infected and degenerated blood clot.

A diagnostic curettage was done July 16, 1926, and the following report received:

"Gross description: A number of pieces of glistening uterine scrapings.

"Pathological diagnosis: A frozen section made from some of the larger pieces strongly suggests a stroma-cell sarcoma of the uterus, probably arising from the interstitial or stroma cells of the endometrium with some invasion of the adjacent muscle."

Supplemental report following a preliminary report on frozen section made July 16, 1926:

"The glandular element here is overshadowed by an overgrowth and apparently invasion of stroma cell groups into the uterine muscle. Several islands of cells suggesting 'epithelial pearls' of squamous cell epithelioma are seen but they are not in sufficient number here to be of value in diagnosis.

"Note: This type of malignancy is infrequent and its degree not well known but, if the condition of the patient will justify it, I think that a complete hysterectomy at an early date ought to be done.

"Pathological diagnosis: Apparently from the uterine scrapings submitted for diagnosis we are justified in calling this case one of sarcoma of the uterus, originating probably from the stroma cells of the endometrium."

The patient was operated on August 3, 1926, a complete hysterectomy being done.

Dr. Phillips reported on the specimen as follows: "Specimen consists of uterus, both tubes and a small cyst. Uterus has been completely removed. Cervix is hard, small and apparently normal except for some hyperemia. The body is of normal size and consistency except posteriorly where there seems to be a firm area in the wall. When cut open there is a large fungoid yellow and red mass adherent to the upper posterior wall, measuring 4x3.5x2.5 cm. There is also a smaller sessile mass adherent to the wall near the origin of the left tube and measuring 12x12x5 cm. Two pieces of the mass were loose inside the uterus and measured approximately 2x3x2 cm. Both tubes were grossly normal except for external congestion. The cyst measured 3 cm., and is apparently serous in character and from the ovary.

"Microscopic description: Sections of the growth show a typical squamous cell epithelioma with some pearly bodies in places and in general the cellular arrangement so often seen in epithelioma of the cervix. The cells are free growing and have invaded the uterine wall apparently a short distance. The growth seems limited to the fundus and this type of malignancy is rare there. Sections of the endometrium lower down show no epithelioma. The former tentative diagnosis of stroma cell sarcoma of the uterus is now replaced by this final report.

"Pathological diagnosis: Final and conclusive report—completing all others:

"Epithelioma (squamous cell) of the fundus of the uterus; normal Fallopian tubes; serous cyst of the ovary.

CHARLES PHILLIPS, M. D.,
Pathologist."

Her post-operative convalescence was uneventful and she left the hospital September 4, 1926, in excellent condition. We have had the opportunity to follow her subsequent course rather closely, and while, of course, it would be foolish to talk of a cure at this early date, we cannot help but be hopeful.

I wish to thank Dr. Charles Phillips for his interest in this case which made its report possible.

1015 West Franklin Street.

ERRORS OF REFRACTION AS A CAUSE OF NERVOUS SYMPTOMS.*

By CLIFTON M. MILLER, M. D., F. A. C. S., Richmond, Va.

The importance of eyes as organs of vision and attempts to improve failing or deficient vision are no new things in medicine. Nero is said to have used a reading glass made from a great emerald. Rabelais, monk and scoffer, was also a doctor of unusual training and ability, bringing to this profession the keen and observing mind that made him the greatest literary light of his time with the exception of Calvin (1532). One of his characters, Panurge, I think it was, is made to say that all the organs of the head except the eyes could have been placed elsewhere in the body without detriment to their usefulness, but the eyes must be placed in the highest portion of the body so that a com-

*Read before Stuart Circle Hospital Clinical Club, Richmond, Va., April 13, 1927.

manding view of the surroundings might be obtained, just as the watch towers of a castle were always the highest part.

There is no muscle of the body with the exception of the heart that is in such a state of constant functional activity as the ciliary muscle. During every waking moment the focus of the eye is constantly varying as one looks from distant to near objects, and the ciliary muscle is the power that brings about this constant change of focus. Helmholtz is credited with having said that were an optical instrument with as many defects as the human eye submitted to him he would reject it. This sounds unreasonable when we realize that the human eye is the only optical instrument whose focus ranges from infinity to a few inches and this focus changes instantly as the necessity arises.

Giving consideration to the enormous use to which the human eye is put and its importance in every act of our lives, it seems strange that its activity as an optical organ was alone appreciated while its influence as a factor in upsetting the function of the nervous system was not thought of until comparatively recently. To S. Weir Mitchell more than to any other man is due the honor of directing the attention of ophthalmologists to this phase of the eye as a cause of headache and various functional nervous conditions.

Parallel rays of light entering the normal eye come to a focus upon the retina. In man binocular single vision is the normal state and when his eyes look to infinity the axes of vision of the eyes should be parallel with the intrinsic and extrinsic muscles of the eyes at rest or practically so. Any departure from the above outlined condition may give rise to trouble which is most frequently ascribed to parts far distant from the eye.

Binocular single vision with normal acuity (or what is usually spoken of as 20/20th vision) may be obtained by eyes that are far from normal in their refractive condition or muscular balance. Indeed, it is the eyes with good vision that cause the trouble when there is in them a refractive error, for they are kept constantly upon a strain to retain the good vision and obtain no rest even when looking at distant objects; some of these eyes are not rested even during sleep, for the constant strain produces a spasm of the focussing

muscle which does not completely relax during this time.

It is very commonly stated that eyes are weaker now than when man was living a more primitive existence. This is probably not true, but the exigencies of modern life make a greater tax upon the eyes; therefore, the train of symptoms which they cause is more pronounced. Then, too, the importance of the eyes as a causative factor in human suffering is more fully appreciated; hence, more frequently looked for and corrected. The fact that a large number of its members wear spectacles in early life is not a reflection upon the hardihood of a people but a tribute to its intellect, the percentage of spectacle users being greatest in the most intellectual races.

Eye-strain may cause symptoms referable to the eye alone, such as recurrent styes, blepharitis, chronic conjunctivitis and meibomian cysts of the lids. Such symptoms would be apt to cause eye examination. Headache is the most frequent symptom found with eye-strain as the cause, but there is no absolutely typical headache produced by this cause. The most frequent is perhaps the afternoon pain in the brow with feeling of constriction about the head, this coming on after prolonged use of the eyes for near work, riding on the train, sight-seeing, theatre going, etc. Headache, however, may come in paroxysms with a week or more interval between attacks; the so-called bilious headaches of a few years ago were in most cases of this type. It has been said that headache upon arising in the morning has not eye-strain as its cause. In the main this statement is true, but there are many instances of severe headache upon arising in the morning being produced by unusual strain the day or evening preceding. The onset of the headache of eye-strain is in no way typical; there may be prodromata, such as scintillating spots before the eyes, photophobia, temporary loss or reduction of vision, or nausea, or it may come suddenly with no premonitory signs. No case of constant or regularly recurrent headache should be considered as having had its etiology fully investigated until the eyes have been proven without fault in the causation. Even when other factors quite sufficient to account for the headache are present, still the eyes may be contributing their quota to the suffering.

Digestive symptoms are probably next in frequency to headache. These may be of varying types from recurrent attacks of nausea and vomiting to severe intestinal cramp. Constipation is not infrequently a result of eye-strain, and cases are not unusual in which the careful correction of an error of refraction has resulted in relief of this condition without any change in the patient's diet or habits being made.

Insomnia is frequently caused by eye-strain. On the other hand, there are some people with an uncorrected error who, when they start using their eyes for near-work, cannot keep awake. Cases diagnosed as epilepsy, both petit and grand mal, have been reported as resulting from errors of refraction. Errors of refraction or muscular imbalance of the eyes are not infrequently the cause of lateral curvatures of the spine or malpositions of the head, the child finding that by assuming certain twisted positions of the head or body the text of books upon its desk can be seen more plainly.

In hysteria eye-strain is no doubt frequently the underlying cause that produces the nervous imbalance which results in various functional disturbances of this kind. I recall the case of a young dressmaker who used to have frequent attacks of hysterical aphonia. These would come without warning once every six weeks to three months and last two or three days. In three attacks she consulted me and, after the third one, her eyes were carefully examined, and a marked error of refraction found. Glasses to correct this were given her and for three years she had no more attacks; since that time I have not seen her.

Children who are highly nervous and irritable in school and who do not progress as they should will frequently be found to be suffering from eye-strain. The correction of errors of refraction in such has resulted in entirely changing their disposition and school progress. Many a child has been called dunce and incorrigible when a proper pair of glasses would have rendered him bright and tractable.

Cases of nervous exhaustion, nervous prostration and so-called brain fag should not be considered fully investigated until the refractive condition and muscular balance of the eyes is known, and if error is found, a most careful correction should be made. In

studying the possibility of the eyes being the cause or a contributing factor in some functional or painful condition under consideration, too much weight must not be given to two statements that are frequently made by patients: One is, "Doctor, I see perfectly for every purpose and have never had any trouble with my eyes", and the other, "Doctor, I have glasses". Both of these statements are undoubtedly true and given in good faith, but should be carefully weighed. If the patient has glasses, how were they given? Were the eyes carefully examined with mydriatic and, if so, how long ago? Is the physical fit of the glasses good and do they meet the present needs of the patient? A glass should not be given, particularly to young patients, without a careful examination of the eye under a mydriatic, for the constant change of the focal distance in the eye whose focussing power has not been eliminated makes correction of the error highly difficult, if not impossible. It is not an unknown occurrence to find a patient who has been examined without a mydriatic wearing a minus glass when a plus correction is what he really needs. Of the first statement mentioned above, it can be said that perfect vision is by no means infrequent, with a marked error of refraction, and it is in such patients that the most marked nervous symptoms are produced. Their eyes are never at rest during any waking moment and the amount of nervous energy required to keep this up is enormous.

The onset of the time of presbyopia (40-45 years) may give rise to nervous symptoms in a patient who has eyes absolutely free from any refractive error or muscular imbalance if he delays too long the using of glasses for near work. Such patients frequently depend upon a greater intensity of illumination and putting the object further from them to put off the time of using glasses, and in doing this cause other troubles that are far more annoying than the use of glasses.

In studying the question of eye-strain and its effect upon the individual, the character of the occupation should receive consideration as well as the temperament of the person doing the work. A laborer or one whose occupation has little near-work in it will not be as profoundly affected by a small error of refraction as will one whose work requires constant near-vision. Again, a person of a

phlegmatic disposition with nervous system not easily upset by the stress of his work will have no symptoms from an amount of eye-strain that would produce almost unbearable suffering in one of nervous disposition who does not bear well the strains of daily life.

Stuart Circle Hospital.

SOME POINTS IN THE TREATMENT OF FRACTURES.*

By CLAUDE MOORE, M. D., Roanoke, Va.

I have nothing new to add in the treatment of fractures, but only expect to emphasize certain points that are frequently ignored or forgotten, since the treatment of fractures is one branch of surgery where carelessness will bring disastrous results both in cures and the number of lawsuits for damages for poor results. The first thought in the treatment of fractures is to be sure that you have an accurate diagnosis, even in the details. The reason of my discussion of this subject is an incident that happened to me a few months ago, that most of you would imagine would never happen. I was called to see a patient nine years old that gave a history of hurting his leg while scuffling at football two days before. The leg was markedly swollen, red and tender, and after complete examination, I found he had a fracture of the femur just above the middle. Another physician had seen him the day before, and, after examining the boy, told his father that he had a sprained leg, advising hot applications, and giving him a prescription for some liniment to apply, telling the father the boy would more than likely be all right in a few days. This physician who is slightly beyond middle age, with a fairly active practice, I consider an average one in his profession, and I believe thoroughly sober. I would never have believed that any registered physician in the State of Virginia, would have missed making the diagnosis of a complete fracture of the shaft of the femur. I took the case to the hospital, and X-ray showed a long oblique fracture through the upper portion of the shaft. Because of the swelling due to lack of twenty-four hours' treatment, this physician, through carelessness, had missed the diagnosis, when there was over

two inches of shortening. Even today I suppose he thinks the boy had a sprain.

Average care of the correct kind in the treatment of fractures will produce good results. Scudder says that only a little over 2 per cent of all fractures of any kind after proper treatment will show failure to unite. All of us know many causes of delayed or non-union in treating fractures, but one of the points I want to discuss is a faulty blood supply in long bones. All text-books discuss at length poor blood supply in fractures where the vessels have been injured in an accident. I want to call attention to the possibility of poor blood supply in simple fracture where the blood supply has been lessened before the injury. This frequently happens where there has been previous injury or disease in the extremity, often an old phlebitis. In rarer conditions there may be pressure of tumors on the larger vessels proximal to the fracture. In more frequent cases there is an endarteritis or an arterio-sclerosis. This condition is more serious than a minor injury to one of the vessels, because there is little likelihood of a collateral circulation. Recently I had such a case that looked for many months like a case of non-union. In all cases where there is a possibility of retarded circulation, all methods of increasing the blood supply must be used. These are too numerous and familiar to be mentioned, but in my opinion the one of most benefit is constant or intermittent elevation of the extremity. In looking up the treatment of poor nourishment in treatment of fractures, I could not find that Scudder in his treatment of fractures, in the new edition just out, had mentioned either endarteritis or arterio-sclerosis as a cause of delayed or non-union. It was almost certainly the cause of a case I am going to report.

Another point that I want to take up in the treatment is that of immobilization. In all of our average cases, all of us, I suppose, try to get the fracture in splints or casts as soon as possible or practicable, with the best possible position under the circumstances, and keep it so until there is good union. But, suppose there is no union, and we have remedied or removed all known causes of non-union, what next? Before operative measures are attempted, such as bone graft, loosening the splints will cause growth of new bone to be started. Sometimes new splints or casts

*Read before the Southwestern Virginia Medical Society, at Pulaski, Va., March 25, 1927.

will have to be made to allow pressure to be made at the ends of fragments. Thus, by irritation at the point of the fracture new bone will possibly begin to be formed. Recently in a case this suggestion was offered by Dr. Wescott, with slow but good results. Care must be exercised that the fracture is well supported with splints or other means to prevent further injury or complications.

Another thing that is often seen is the average physician trying to get a beautiful or good anatomical result rather than a good functional result. I have seen cases where continual attempts have been made to get a perfect alignment of fragments even after union has begun. This is permissible in the first week in a few fractures in exposed places where the patient's professional or social life is such that a poor anatomical result would be a serious handicap, but in most cases an ideal cure should be attempted more for a strong bony union than to restore the perfect anatomy. Especially is this true in this age of rapid or high pressure living, where the average industrial man is living up to the limit of his salary, and too frequently with this installment buying his pay is spent weeks before he makes it. In these cases, with the physician trying to satisfy his aesthetic taste with a perfect anatomical cure, the patient will be kept from his job a few more weeks, thereby losing what little he is buying by installments, and paying his accumulated debts with bankrupt notices. Especially is this so in the present day when the doctor treating the case can look to insurance companies or industrial corporations for his fee when the case is discharged. Due to increased accident, automobile, and industrial insurance, physicians are little handicapped in the costs of the treatment of fractures.

On the other hand, because of the difference in the osteogenetic power in different bones in different people, the physician should not err on the opposite side. Often presupposed non-union will only be delayed union. Temptation is great to attempt surgical interference, such as bone grafts, plates, etc., thereby converting delayed union into non-union, or delaying the return of the patient to a gainful occupation. Judgment of the treatment to be administered is of far more importance, except in very unusual circumstances, than the technic of applying the procedures. Due

to our war experiences, many extremities are now saved which would have been sacrificed. In a base hospital in France I have irrigated and dressed compound fractures of the femur for months at a time, later to get a useful leg with only a slight limp due to shortening.

Lastly, I want to discuss a condition that does not apply entirely to fractures alone, but certainly to as great or greater extent than in any other accident, namely, the financial or economic side of accidental injuries. Virginia is falling rapidly behind many states and some of the countries in Europe in the provision for the care of a person and his dependents when he is injured at his regular vocation, often through no fault of his own. It is the duty of the physician who is most intimately associated with the patient to see that this is remedied. As you know, a man injured at his regular job is entitled to half of his regular weekly pay, up to \$12, after the first ten days, which are exempted, and the employer or insurance carrier pays all expense of treatment. He can collect for the first ten days after injury if he is incapacitated for forty-two days. Under such circumstances, how can a man, even with a small family, expect to meet expenses in these days of high costs on the above wages. A man living in a respectable neighborhood cannot more than pay house rent on the maximum compensation allowed him. The above law has not kept pace with modern costs. A man slightly injured can tide over a few weeks with little or no compensation, but how about a man with a bad compound infected fracture with from three to twelve months' invalidism? The law should be amended so that if a man is off from work longer than his credit will carry him, or he can catch up in a few weeks, should be paid a salary that will pay his regular living expenses that are necessary to support himself and family. A man off from work with a bad fracture, for example, for six months is a bankrupt not only for his previous debts but his actual living expenses during his illness. If greater compensation is beyond the means of the small employers, then the law should be amended to meet the condition, like the larger corporations are helping the employees, that is by carrying group insurance on all of the employees, and assessing them a small amount out of their wages to pay for this insurance. Massachu-

setts is taking the lead along this line. Last year they passed a law requiring all automobile drivers to carry liability insurance.

I want to report a case to which much of the previous discussion applies.

Mr. G. H. B., age 38, laborer, wages \$20 a week, was injured in January, 1926, while unloading cement. He had a spiral oblique fracture of the right tibia in the lower third, and a transverse fracture of the right fibula in the upper third, both fractures simple and not comminuted. The X-rays showed a marked arterio-sclerosis of the posterior tibial artery with deposits of calcium salts in its entire length. In fact, the picture of the artery was even plainer than the bones. The fracture was reduced and plaster splints applied. X-rays showed good position. Because of the poor blood supply, he was kept in bed in the hospital, with the bed elevated at intervals, for three weeks. At the end of that time the bones showed no union whatever, the crepitation being more pronounced than at the time of the injury, showing that the blood clot had been absorbed and there was no beginning cartilage or fibrous formation. All clinical and laboratory tests were repeatedly negative, including spinal Wassermann. Due to patient's dislike to confinement to the hospital, he was allowed to go home, and stayed in bed four more weeks. During all this time all possible means were used to increase the circulation. At this time there was still no union at all and crepitation was as marked as ever. In addition, the site of the fracture had become almost painless. We then decided to try motion and irritation, and to allow this we put a tight circular cast on the leg extending from just below the knee to well below both malleoli. He was given crutches and started walking, gradually increasing the weight on the injured leg. At the end of three weeks crepitation had disappeared, but there was about as much motion as formerly. Circular casts, as above described, were kept on him, with frequent changes, and by the end of six months he was getting some union. The condition was followed by frequent X-ray pictures and all aid to help circulation. At the end of nine months he had fair bony union and the circular cast was changed to a strap circular cast for support. By the end of a year he had good bony union and apparently full strength. Due to the inability to make a circular cast that would support his

weight and at the same time let him use his foot, he got about one inch of shortening of the leg, but this was easily taken up by the tilting of the pelvis and he does not limp. He returned to work at the end of a year, at hard labor, and has had no trouble since.

This man had a wife and four children, with another child added shortly after his accident, and drew \$10 a week during his illness. Naturally, he was dependent to a great extent on charity, and I know that he and his family often lacked the necessities of life. Had he not been born and reared in the lower strata of society, and been accustomed to hardships, he would have suffered much more than is the right of any man to suffer through no fault of his own.

Shenandoah Life Building.

TUMORS OF THE SPINAL CORD.*

By JOHN J. SHUGRUE, M. D., Rochester, Minn.
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Tumors of the spinal cord manifest themselves in many ways, both apparent and obscure. The apparent relative rarity of such tumors in ordinary practice is probably due to the fact that the symptoms are not recognized, not necessarily because of ignorance but rather because of negligence of the subject. In general, the manifestations of tumors of the spinal cord are pain, sensory and motor disturbances, changes in the spinal fluid, and roentgenologic abnormalities.

PAIN

The most convincing symptom is pain, and yet it is sometimes absent and sometimes vague and not correctly interpreted, so its value is underestimated. At first the pain is along a nerve and for a time is unilateral, then bilateral. It comes on usually while the patient is recumbent, and hence during sleep, from which he is often awakened and forced to get up and walk around for relief. Bending forward and backward, straining, jarring, and coughing aggravate the pain. The patient finds the upright position more agreeable. On percussion of the spinous processes the maximal tenderness is usually found over the spine just over the tumor. These factors characterize extramedullary rather than intramedullary cord tumor, probably be-

*From the Section on Neurologic Surgery, Mayo Clinic.

cause of the relative mobility of the former. The pain may be referred throughout the ramifications of the nerve, or only in the proximal or distal parts, or may remain localized in the back. Although the pain is usually neuralgic, it may be manifested by burning or numbness. Pain may or may not exist from the beginning of the extramedullary tumor, but it is usually present at some time during its course. The neuralgic pain, due to direct irritation by the tumor, gives a hint concerning the level of the lesion. If the pain is so vague as to be unrecognized for a long time, the patient often resorts to chiropractic treatment, and the pain is wrongly attributed to it, the examiner not realizing that the pain antedated the treatments. It is, therefore, obvious that a thorough history of the case is of paramount importance.

SENSORY DISTURBANCES

The qualities of sensation are all investigated in the examination: sense of pain, temperature, touch, joint movement, and vibration. Of course, the sensory disturbances depend on the tracts involved. Generally speaking, any possible sensory disturbance may occur; usually the extramedullary tumors manifest sensory changes, most marked at a distance from the lesion, whereas in intramedullary tumors such changes progress from the lesion downward. Rarely there may not be any sensory disturbance. Intramedullary tumors are said to produce disassociation of sensation more often than extramedullary tumors; however, sensation in the perianal region is more often preserved in extramedullary tumors. The pathway for touch is still a matter of speculation and the sensation of touch is rather variable in its absence, although it is more often absent in the intramedullary type. The sensory changes are disturbances in the segmental areas rather than in the peripheral nerves, and they tend to become bilateral. It has been noted that following spinal puncture the sensory changes and the sensory level become more apparent on examination. Bladder and rectal trouble is more noticeable earlier in cases of intramedullary tumor, although it occurs early with both types of lesion of the conus medullaris and cauda equina. An extramedullary tumor that has existed for a long time exerts sufficient pressure to produce sensory changes

similar to those of intramedullary tumor.

Reflexes.—A knowledge of the nerves concerned with the different reflex movements is necessary. Roughly, there are two types of reflexes,—those from pyramidal lesions and those from lesions of the lower motor neuron. Pyramidal lesions produce hypertonus, increased response, no atrophy, the inordinate reflexes such as the Chaddock, Babinski, and Hoffmann, and usually a loss of the superficial reflexes below the lesion. Lower motor neuron lesions manifest loss of tone, atrophy, and disappearance or diminution of the reflex. The former denotes injury to the cord, whereas the latter denotes injury to the peripheral nerves or cauda equina. Therefore, if one keeps in mind the segment of supply, one has an additional means of locating the lesion. A point worthy of mention is Horner's syndrome, which occurs in cases of lesion in the region of the eighth cervical and first thoracic nerves. It is a phenomenon associated with injury of the sympathetic nerve and consists of ipsilateral myosis, enophthalmos producing pseudoptosis, and ipsilateral dryness of the neck and face.

MOTOR DISTURBANCES

A knowledge of the segmental nerve supply is necessary, as this and not the direct peripheral nerve supply of the muscle is concerned in motor disturbances. Those who have had experience with the paralyses of anterior poliomyelitis appreciate this. It is not groups of muscles but rather a field that is paralyzed, certain muscles being unaffected although supplied by the same peripheral nerves. In evaluating the motor system, strength, amplitude, atrophy, fibrillary twitchings, and tonus of the separate muscles are taken into consideration.

Fibrillary twitchings are usually due to irritation or degeneration of the cells of the anterior horn of the spinal cord and give direct evidence of a lesion at the level of the segmental field where they occur. This is an important means of determining the situation of the tumor. Fibrillary twitchings are said to be more common in intramedullary tumors, and yet they are often seen in extramedullary tumors. Another sign is myoclonus, which determines the site of the tumor to be in the segment in which the myoclonus occurs. The pathologic basis of this phenomenon

is different from that of fibrillary twitchings and probably represents irritation of the anterior roots or nerves rather than irritation of the horn cells. The other qualities of the motorium, such as strength, amplitude, atrophy, and tonus, are self-explanatory, and what has been said of reflexes can be said of these. Coordination, tremor, stereognosis, gait and station are also investigated, and although altered from the level of the lesion downward, they are seldom of value in determining the exact site of the lesion, aiding merely in postulating a lesion of the central nervous system.

CHANGES IN THE SPINAL FLUID

Spinal puncture is probably the most important test in some cases. The usual site for the puncture is the fourth lumbar interspace. The skin is prepared with ether, followed by two applications of iodine, and sterile towels are placed about the field. The operator wears sterile gloves and gown and is prepared as for an operation. An imaginary line is drawn between the iliac crests, the desired interspace being at the point where this line crosses the middle of the back. A drop of novocaine is inserted subcutaneously and the patient's back acutely arched. The lumbar puncture needle is then introduced at about the middle of the interspace. The puncture is done with more precision if the needle is grasped with the left hand, the dorsum uppermost and the medial side at the wrist resting on the patient's back, as this method enables one to appreciate the feel of the needle more readily. With experience the dura and subarachnoid space can be expertly punctured. After the stylet has been withdrawn the manometer is connected, and the spinal fluid rises in the instrument. The patient is asked to relax completely, and the fluid descends to a stationary level, which usually takes about five minutes. Relaxation can be hastened by having the patient pant or breathe with the mouth open. When the patient coughs the fluid should rise. This coughing response is used to determine whether the needle is within the subarachnoid space, and it excludes the possibility of temporary plugging of the needle, which would produce an erroneous response to jugular pressure, as happened on one occasion. The height to which the fluid rises in the manometer is recorded, then the jugular veins on both sides are compressed,

and normally the fluid quickly rises and falls in the manometer. This indicates that the communication between the head and the needle puncture is free. About 8 c.c. of fluid is removed and after a few minutes the pressure is again noted. The possible observations of pressure in tumor of the spinal cord are: no response nor rise after jugular pressure, slow rise with an equally slow fall, or rapid rise with slow fall. When any of these occur the fluid may or may not be yellow, and there is usually a great difference between the first pressure reading and that after fluid is withdrawn; in fact the fluid may not rise in the manometer after removal of fluid. This phenomenon is called spinal block or a positive Quakenstaedt test. If the spinal fluid is yellow, it will sometimes jellyfy after standing. Chemical examination of the fluid in a case of spinal block usually shows an increase in albumin or globulin content. Extramedullary tumors are more likely to cause spinal block and yellow fluid than intramedullary tumors. A method often used when a block is discovered is the insertion of needles progressively up the spine until block is avoided, and this is a good way of determining the site of the tumor. If the tumor is low, no fluid, or bloody fluid is sometimes encountered, which probably means, if the operator is expert in spinal punctures, that the tumor has been entered.

ROENTGENOLOGIC SIGNS

Usually roentgenograms of the spine are negative, but in some cases of extramedullary tumor an exostosis will occur at or just below the site of the tumor, consisting of a bridge-like spicule of bone on the anterior part of the body and also on the sides. There is never any periosteal stratification, unevenness, or hyperostosis. These changes are found in other diseases. The exostosis is caused by chronic inflammation and venous stasis of long standing in the region of the tumor.

Lipiodol.—A great boon to the diagnosis of tumors of the spinal cord whose site is difficult to determine was the advent of lipiodol. There are two types of lipiodol,—lipiodol ascendens and lipiodol descendens; one sinks and the other floats in the cerebrospinal fluid. When the drug is introduced into the spinal canal, one can localize the upper and the lower levels of the tumor. After a small

amount of fluid is drawn off, the iodized oil is introduced, lipiodol descendens through a cistern puncture and lipiodol ascendens through a spinal puncture below the site of the tumor. Under the fluoroscope the level is noted and later a roentgenogram is taken with the patient in the sitting position. Usually lipiodol descendens is used, being injected through a cistern puncture, and the patient is gradually tilted on the fluoroscopic table and the course of the drug followed until it meets the obstruction, when it stops or is deflected. A roentgenogram is then made.

SOME ALTERED EARLY OPINIONS AS TO CHILDHOOD LIFE.*

By DAVID B. STUART, M. D., Dublin, Va.

After a membership of nearly three years in this society, I am appearing before you with a "voluntary" paper for the first time. It is voluntary in the single respect that it is my wish to remain a member of this splendid organization, and our honorable secretary has tactfully but firmly drawn my attention to the by-law, that requires all those entitled to that privilege, to appear before you at least once every three years. So, to continue on as a member, I am offering this as a voluntary paper, which is not one backed with elaborate scientific controls and observations, nor one compiled from extensive references, records or case reports. But, instead, I am going to try to outline to you some of the interesting facts of childhood life, gleaned from my few years of practice, that have altered my opinions as a student and early practitioner considerably.

In our medical courses we are given more or less concrete definitions, for the various ailments of the human body, that are supposed to follow a well-established outline, which tend to give us a good deal of information in regard to that particular complaint, usually briefly stated. In student days I learned a large number of these, and prided myself on the knowledge of the same, ever looking forward to that day when I would emerge into general practice and recognize these various diseases by recalling the explanatory definitions for them. In the first few months of practice I began to feel myself becoming dis-

illusioned, realizing more each day that disease is far more variable than a definition, and also that, of all the descriptions I could recall by perusal of many textbooks, they stated without exception the pathology in terms of far-advanced and well-organized conditions. So, unless I awaited a time with patience, until this could all take place, I could not hope to recognize the many early symptoms and signs until many valuable days or weeks, as the case may be, had gone. Thus, the many advantages of early recognition and prompt treatment had been lost, never to be regained.

THE PRE-RACHITIC INFANT.

To avoid rambling on further in a general way, I shall choose from a well-known textbook—Osler's Practice of Medicine—the following definition of rickets: "A disease of infants, characterized by impaired nutrition of the entire body and alterations in the growing bones," an excellent description, no doubt, of the general pathology present in far-advanced cases of rickets, but one that fits the time when the damage is done, and when treatment is of far less value than when instituted in the early weeks of the condition. So it is my object to attempt to draw attention to the period that exists before the well-developed rachitic state, and to the many ailments of infant life that are closely associated.

The observations that follow are on infants from the age of three months on through the third year of life. Before and after these ages it is almost useless to look for the complex that I am picturing. In far more cases than has been the general teaching, a certain series of disorders may be observed. The breast-fed and bottle-fed infants are both affected, but the incidence is much higher in the latter, in spite of the fact that more artificially fed babies are found in the better class homes. The stage of advance is variable, but, regardless, there is a well ordered train of symptoms and signs, both present and past, that will throw a light on the true conditions. These are elicited only after careful and at times persistent inquiry. Usually, after questioning, you will obtain a history of mixed symptoms, along with a record of many intercurrent affections.

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The earlier signs and symptoms include, usually, the following:

1. A history of delayed dentition.
2. A history of delayed walking.
3. Extreme irritability.
4. An indifferent appetite.
5. A poor general appearance.
6. Gums somewhat blanched and drawn, and at other times spongy and bleeding on slightest friction.
7. Occasionally purpurul spots over the body, chiefly lower extremities.
8. Occasionally general glandular enlargement, more often the submaxillary and anterior cervicals.
9. Large heads, with prominent foreheads.
10. Bald spots, particularly over the occipital region, with a history of profuse sweating, usually nocturnal and when fretting.
11. A decided enlargement of the abdomen, at times so marked as to approach the classical "pot-belly."
12. A late closing of either of the fontanelles.
13. A slight deformity of the chest, with a tendency toward being barrel-shaped.
14. A record of pain and stiffness in joints and limb.
15. A history of numerous "spells," which consist largely of the following complaints—(a) Frequent colds and bronchial attacks; (b) Colitis, at varying intervals, but repeated from time to time; (c) The "colicky" baby, that has it regardless of what formula or general treatment it may be on; (d) A history of obstinate constipation, of long duration; (e) Spring and fall attacks of thrush.

I shall not attempt to go into detailed explanation of the conditions named, for all of us are so familiar with them that it would be only time lost. Think back over a year or two of practice and recall the number of children that you have seen with a half dozen, or even a dozen, of these complaints. Recall also the time that it took to correct the majority of them, and in spite of vigorous treatment that some of them, even then, just simply seemed to "outgrow" the complaint. When I first became interested in this type of child, I

was puzzled until I began to realize the close association of these various conditions. I noticed that the gastro-intestinal disorders were of a catarrhal type, that the mucous membranes were frequently inflamed, and that oftentimes a thrush was superimposed. The condition of the skin varies but is usually pasty. The blood counts are not consistent, but as a rule there is a slight secondary anemia, and a very slight leucocytosis. Summing up this data, it appeared to evolve, almost, into a complex, and as the occurrence was far more than occasional, being present in at least 10-15 percent of infants seen in general practice, the question of a suitable treatment naturally arose. This was something that was not so simple to outline, for, obviously, with complaints so multitudinous and various, the routine of therapeutics applied had to be of sufficient scope to include all, for it soon proved out that just a mere general toning up would not be sufficient to produce results. To summarize briefly, treatment has been directed in this type of patient in somewhat the following manner, varying slightly for the individual case:

1. It is of prime importance to remove any foci of infection that may be present. The most frequent of these has been a redundant prepuce, often with phimosis. Occasionally a diseased condition of the tonsil and the presence of severely infected adenoids will be detected, but this latter condition is more often to be seen in the older child.

2. The clothing ought to be light, airy, and should be changed frequently to accord with climatic changes.

3. They should be placed out in the fresh air as much as possible when the weather will permit. If practical, they should be given whatever exercise that is feasible. If before they can walk, they can be given something approaching a light massage, to be employed once or twice daily either by the nurse or mother.

4. The older and more advanced cases are helped appreciably if they are exposed to the actual ray of the sun, particularly over the chest region. It is often well to strip them entirely, covering the head only, and allow them to run and crawl around in sunny spots until they are thoroughly tanned.

5. The diet is of great importance chiefly from the fact that it should be a very nutritious one, filled with milk, butter and the various fresh foods of high vitamine content. Here the mistake is made by many mothers of nursing their babies too long. Many of them insist on nursing their children "through the second summer," and some will nurse them for three to five years. This is often due to fear of the disturbance that may come with weaning the baby, but the vast majority keep on starving the baby and pulling themselves down, in accordance with a popular belief that, in doing so, they will prevent larger families.

6. The presence of fruit juices plays an important part, for there is a scorbutic tendency noted particularly in the bottle-fed baby. This assumes the form of spongy and easily bleeding gums, and the presence of purpurial spots over the body, more especially the lower extremities. Aside from this, fruit juices exert a marked beneficial effect on the general development of the child and, when used in conjunction with well prepared fresh prunes, will nearly always overcome the most obstinate case of constipation without the use of any other treatment.

7. Last, but not least, comes the medicinal treatment. This is confined to one article that is of greatly disputed value. I refer to cod-liver oil, of which nothing but the pure oil should be used, as the so-called emulsions, extracts, etc., are of little or no value in this condition. Cod-liver oil should be given in fairly large doses for the age for which it is to be prescribed, and is best given in just two doses a day. It is best after meals, and should never be forced on the child either by bribery or threat. If the indications and necessity for treatment are fully explained to the mother, I have noticed in those that persist, that at the end of ten days most of the children seem to want the oil, almost as if they realized the benefit therefrom. It should be given only in the winter months, as it will upset the most robust of digestions in the warmer months of the year. Occasionally I use a cod-liver oil that has a small amount of phosphorus incorporated, with even better results than the oil alone. In the hands of an intelligent and earnest mother, the majority of children will take cod-liver oil with little or no difficulty,

but once in a while there will be one that just simply cannot take it. To this group I have given with splendid results a preparation of cod-liver oil, marketed as Coco-Vitamin, prepared by Eli Lilly and Company. In this the oil is blended with coco-syrup, is unaltered, and makes a dose that is not offensive to the most delicate digestion. It is necessary, however, to give much larger doses, if one hopes to obtain as prompt results as with the pure oil.

CONCLUSIONS.

1. Advanced rickets is seldom encountered, and, if so, can be little improved by the treatment outlined. A so-called complex approaching that condition is often seen. This, if untreated, delays general physical development, and results in a week, mal-nourished child that is a frequent sufferer from intercurrent affections, and is more often acutely ill from apparently simple disorders.

2. Personal experience seems to show that special attention devoted to this type of child results in a sharp drop in infant death-rate from other conditions that may be superimposed.

3. Treatment must be prolonged over a period of months, and repeated, if indicated. Cod-liver oil in its pure and unaltered state is the one and only medicinal product that is of great benefit, for any other medicine is purely palliative or symptomatic in its results. All of which goes to say that patience and persistence are the cardinal virtues to be strived for if we are to hope for results.

TOXIC GOITER.*

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The term toxic goiter as used in this paper includes all types of goiter in which there is evidence of increased or perverted secretion of the thyroid gland. The basis for conclusions drawn is a review of the last forty cases operated upon at the Lewis-Gale Hospital. In these cases there were no deaths and the end-results were uniformly good. Previous to this series, our mortality rate and end-results were far from satisfactory so we felt that a careful review, not only of the case histories

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themselves, but of our general plan of management, would be of much benefit to us in our effort toward improvement, and possibly of interest to others.

There is no need for presenting a detailed summary of our findings, for the number of patients is too small to be of much benefit as a statistical report. After a review of the literature, I believe they represent a fairly average group. There were thirty-two women and eight men. The youngest female was sixteen and the youngest male twenty-four. There were ten patients over fifty years of age, with the eldest seventy.

No information of value as to the causative factor was obtained. Of the few who attempted to give some reason for their present condition, six gave influenza, three operations, one menopause, and one mental stress.

As an aid to diagnosis, we divide toxic goiter into four general types or classes:

1. Exophthalmic.
2. Fetal Adenoma.
3. Adult Adenoma.
4. Malignant Adenoma.

These cannot always be clearly differentiated except with the microscope, but we find that with increasing experience we are able to place more and more of them in their proper group before the pathologist has made a section of the gland.

The exophthalmic type is usually easy to diagnose with its acute and rapid onset, extreme nervousness and bulging eyes. This usually occurs in the young and is so severe that they seek medical advice early in the disease. The enlargement in the neck is smooth and symmetrical and frequently pulsating. Headache, which we found to be a prominent and frequent symptom, both before and after operation, in this series of cases, is worse in the exophthalmic patient.

The fetal adenomata are fairly characteristic. They frequently have a large nodular goiter which they have had for years, often since puberty. Something happens which causes it to become toxic. It is often hard to convince the patients that this could possibly be the cause of their present symptoms. Loss of weight, nervousness and weakness, with a consistently elevated metabolic rate, will point to the goiter as the seat of disease.

Similar to the fetal adenoma is the adult

adenoma or latent type. This develops gradually and produces a nervous unstable individual who is subject to periods of toxicity, followed by comparative normalcy. In this respect it differs from the fetal adenoma, which nearly always grows increasingly worse once toxic symptoms are developed. We are not certain in our own minds that this constitutes a distinct type, feeling that it may be a latent type of exophthalmic gland rather than adenoma.

Malignant adenomata cannot be differentiated from the others clinically. The symptoms and appearance of the gland are often identical but after the goiter is removed an area of malignant cells is found.

In contrasting the symptoms of toxic goiter in the old, e. g., those over fifty, and the young, there are several things with which we have been impressed.

1. Old people are more liable to have a coarse tremor than a fine one. Loss of ability to write legibly on account of their hands shaking is often their most troublesome symptom.
2. They are more liable to come to you with the complaint of neuro-muscular weakness.
3. They are more liable to a rapid loss of weight with a normal food intake.
4. They are more liable to paroxysmal cardiac disturbances.
5. Diagnosis is not so clear in the aged and we are forced to rely more on basal metabolic readings.

Exophthalmos was a symptom noticeable by its infrequency in this series of cases, only eight showing this condition, although twenty-seven were of the exophthalmic type gland.

Diarrhoea was present in six cases, and all of these showed an achylia-gastrica. For this reason, we are not inclined to believe that thyroid intoxication alone will produce a diarrhoea, but will do so in the presence of an achylia.

In our cases of exophthalmic goiter with increased basal metabolism there was a diminished menstrual flow rather than an increase as some text-books describe.

The nutritional changes constituted not only a loss of weight but what seemed to be an atrophy of the peripheral muscles, evidenced by their weakness and a tendency for them to sag at their bony attachments. This is in keeping with the known facts in regard to the metabolic activities in exophthalmic goiter,

which are evidenced mainly by a nitrogen imbalance. For many years we have known that there is a marked tendency toward tissue waste, even though the protein intake is entirely adequate. The increased brittleness of the nails with a tendency toward excavation and separation of nail from matrix is probably a nutritional disturbance of a similar nature.

The treatment of toxic goiter is essentially surgical, although close co-operation with the internist is necessary for satisfactory results. The nature of the symptoms is such that the patient in most instances first seeks the advice of a medical man rather than a surgeon; therefore, the diagnosis and pre-operative care rest largely upon his shoulders. Basal metabolic readings are of great help in arriving at a diagnosis, and for accurate comparison should be made by the same individual. We feel that the use of Lugol's solution as an aid to diagnosis is seldom justifiable. We use it routinely in the preparation of all cases for operation and find that all types of toxic goiter are benefited by it. The most marked benefit is seen in those who have not taken it at some previous time. Lugol's solution, rest, increased diet, and a mild sedative, such as luminal, are the essential points in preparing the patient for operation. Digitalis is never used, even in fibrillation.

The operation is performed under combined gas-oxygen analgesia and local novocaine anesthesia. Administration of gas-oxygen is begun as soon as the patient enters the operating room. A short collar incision is made and the skin dissected off of the platysma. The muscles are divided in the mid-line and not cut. The capsule is dissected from the gland and retracted with the muscles of the neck. After removing a major portion of both lobes of the thyroid gland, a rubber dam drain is passed into each fossa and the capsule replaced by suturing with number O catgut. The drains are brought through the skin incision and the wound closed with metal skin clips.

Immediately after operation all cases receive an intravenous injection of one thousand cubic centimeters of normal saline with fifty grammes of dextrose, and are given a hypodermic of one-sixth grain of morphine. The morphine is repeated whenever necessary, and this should be often enough to insure complete rest. The dressings on the wound are changed in six hours, and again twelve hours

later, and then daily until there is no drainage. Early and frequent dressings are very essential to prevent absorption of the highly toxic serum which gathers in the wound. Skin clips are removed on the third day. The use of Lugol's solution and luminal are continued for some time following operation and withdrawn gradually. The patients are usually permitted to leave the hospital in from one to two weeks.

The major conclusions which we have drawn are these:

1. We are convinced that an early diagnosis of toxic goiter is as important as an early diagnosis of tuberculosis, and frequently as difficult. It has been demonstrated that definite changes in the sympathetic nervous system are produced by increased thyroid secretion over a long period of time, and these changes probably explain the slow convalescence and sometimes failure to get complete relief after thyroidectomy on these cases.

2. For all practical purposes, there is no necessity for attempting to draw difficult clinical distinctions other than establishing the fact that the patient has a goiter which is producing toxic symptoms.

3. Diagnosis is much more difficult in patients over fifty years of age.

4. Every effort should be made to establish a diagnosis before giving Lugol's solution, but it will benefit all types of toxic goiter and will help confirm a diagnosis which may be doubtful.

5. The treatment is essentially surgical.

6. The old practice of cutting the ribbon muscles of the neck is not necessary.

7. Best results can be obtained by a coordinated group familiar with the entire plan of treatment and all of whom are working in unison.

PYELITIS.*

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Pyelitis, inflammation of the pelvis of the kidney, is one of the common conditions that the physician is called upon to treat. Only a few years ago it was thought to be rare, but as methods of diagnosis have improved and physicians have learned the importance of making more thorough and complete examina-

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tions, we have learned that this is not a rare disease. Inflammation of the pelvis of the kidney is practically always associated with some inflammation of the kidney itself, but the term pyelitis is used to apply to the cases where the pelvis of the kidney is the principal seat of the infection.

Pyelitis is classified into the following groups: (a) simple pyelitis; (b) pyelitis of pregnancy; (c) pyelitis of infancy and childhood; (d) pyelitis following surgical operations, and (e) pyelitis due to tuberculosis. Tice gives another classification, those occurring in newly married women. It is further divided into the acute and chronic cases.

Pyelitis is caused by bacterial infection, but under ordinary circumstances the kidney will eliminate bacteria without itself being damaged, so we find it is necessary that there be a lowering of resistance before infection takes place. Pyelitis may occur at any age, but is most frequent from twenty to forty years of age. It is also fairly frequent in infancy and childhood. It occurs more frequently in females than in males, nearly two-thirds of all cases being found in females. Simple pyelitis may occur in one or both pelves, but it is most often bilateral. Among the most common conditions that predispose to pyelitis are: obstruction of the urinary tract; focal infections; various acute infections and general causes, such as anemia or any condition that especially lowers general resistance. Obstruction of the urinary tract is probably the most common predisposing factor. The most common infecting organisms in the order of their frequency are: the bacillus coli communis, the staphylococcus aureus and albus, the streptococcus and the tubercle bacillus. The gonococcus, typhoid bacillus, pneumococcus, etc., are occasionally found. The colon bacillus is found in the great majority of cases. Bumpus and Meisser believe that the streptococcus is the infecting organism and that the colon bacillus is a secondary invader, which usually grows and usurps the field. They also believe that the teeth and tonsils may harbor the streptococci which have a selective action for the urinary tract. In chronic cases we often find one or more organisms present.

The methods of invasion are: (a) hematogenous or blood borne type; (b) ascending

type, and (c) by direct continuity. For a long time it was thought the principal route of infection was the ascending route, but it seems to be the consensus of opinion now that infection ascending the urinary tract is rare. It is possible that infection may ascend the urinary tract by way of the lymphatics. The principal route of infection is through the blood stream.

Pyelitis is a rather frequent complication of pregnancy, and it occurs most often during the last half of gestation. It is especially prone to occur in cases which have had a previous infection of the kidney, and in cases of stricture of the ureter. As the uterus increases in size and extends above the brim of the pelvis it impinges upon the ureters and causes compression, resulting in stasis, which predisposes to pyelitis. It seems that the compression and resulting stasis are the important factors, which is borne out by the fact that all that is necessary to cure many cases is to deliver the woman and the pyelitis promptly subsides.

From the cases we see, and from the cases reported, it would appear that pyelitis in infancy and childhood is increasing, but it is doubtful if there is an actual increase; what probably is true is the fact that we are diagnosing more cases than we formerly did because we are looking for them and because we are making more thorough examinations than formerly. Pyelitis of infancy and childhood is a rather frequent complication of infections of the respiratory tract and it often follows gastro-intestinal upsets. It is also a rather frequent complication of scarlet fever, typhoid fever, pyemia, *et cetera*. In fact, it is one of the more common complications of all the acute infections. It is most frequent in girls, and the younger the child the more frequent it occurs. In young children it is usually self-limiting.

Pyelitis as a post-operative complication is rather infrequent. Maloney, reporting in the *American Journal of Obstetrics and Gynecology*, Vol. XL, No. IV, states, in 7,300 gynecologic operations at the Woman's Hospital, there were twenty-four post-operative complications of pyelitis, which is about one-third of one per cent. It is probable that lowering of resistance and shock following the opera-

tion are the chief factors predisposing to pyelitis as a post-operative complication.

Pyelitis is very often due to renal tuberculosis, and if there is any reason to be suspicious of tuberculosis, it is necessary that a very careful study be made before tuberculosis is excluded. The diagnosis is made by finding the bacillus in the urinary sediment or by guinea-pig inoculations; repeated examinations and tests are necessary to make a decision. Pyelitis due to renal tuberculosis is found most often in males and occurs most frequently during middle life. It is probable that primary renal tuberculosis does not occur, and if a diligent search is instituted other evidences of tuberculous involvement can often be found. Pyelitis due to renal tuberculosis is very often bilateral, and tuberculosis of the remaining kidney is very often the latent cause of death following the removal of a tuberculous kidney. Autopsy reports of cases having had tuberculosis of the kidney have shown as high as seventy per cent bilateral involvement. Tuberculosis of the kidney has a tendency to wall itself off and the urine may remain free for years, so we must be cautious in declaring a patient well even though we have a clinical cure. On the other hand, tubercle bacilli may be found in the urine without the kidney being infected.

Pyelitis is divided into the acute and chronic cases. The acute type usually begins with general aches and pains, and there usually is pain and tenderness in the kidney regions. Chills and sweats are common, as well as frequent urination and dysuria. There may be nausea and vomiting. There is considerable fever, which usually ranges from 100 F. to 105 F. The urine contains pus, albumin and red blood cells. In typical cases of pyelitis we do not find casts. As the acute condition improves, the albumin gradually disappears and there is a general lessening of pus with its complete disappearance with recovery. If the fever remains high, it is evident that drainage is not good. The acute symptoms usually last from three to ten days, but may persist longer.

In chronic pyelitis there will usually be found some pus cells, but as a rule there is no albumin. It is possible to have chronic pyelitis without finding pus cells in the urine, but a smear will usually show some germs.

Chronic cases may develop following an acute attack or they may gradually develop without being preceded by an acute onset. It is more common to develop without an acute attack. Chronic cases may exist for years without giving marked symptoms. There is usually frequent and burning urination, and there may be dribbling or incontinence of urine. Hematuria may be present, pain is variable and nervousness is a fairly common symptom.

The diagnosis does not prove difficult as a rule, but to determine the cause of the pyelitis will require a very careful examination. By ureteral catheterization we can determine where the pus is coming from. Then it is necessary to determine if there exists a stricture, a stone in the ureter or kidney, hydronephrosis, tumor or renal tuberculosis. It is essential that tuberculosis be diagnosed, if present, and eliminated as a cause of pyelitis if not present. It will be necessary to make repeated microscopic and bacteriological examinations of the urine, and more important, repeated guinea-pig inoculations. Renal tuberculosis is often masked by colon bacillus infection. Bladder changes near the ureteral orifice should arouse suspicion of renal tuberculosis. Tumors, strictures and hydronephrosis can be diagnosed by pyelograms. Calculi in the kidney are practically always accompanied by pyelitis. They should be kept in mind as one of the causes of pyelitis. In pyelitis the functional output is practically normal, whereas, if there is an associated nephritis there may be marked decrease in the output of urine. It may be necessary to determine the output from each kidney, which can be done by the indigo-carmin or phenolsulphonaphthalein tests with the ureters catheterized. Continued pain in the kidney region should make us suspicious of the formation of an abscess. Malaria is one of the conditions that we are occasionally called upon to differentiate from pyelitis. In women catheterized specimens are essential. Of all the conditions to be differentiated from pyelitis probably appendicitis is the most common.

REPORT OF CASES

Mrs. T. F., aged 30, came to me in June, 1925. She complained of having had several attacks of pain in the right iliac region.

These attacks usually lasted about three or four days, and they recurred about every three months. The attacks were not especially pronounced, but were severe enough to keep her in bed during most of the attack. A bimanual examination was made, which was negative except for an infection of the cervix. There was slight tenderness on deep pressure over McBurney's point. Microscopic examination of the urine on several occasions was negative. After a thorough examination, except for not having an X-ray taken, which was omitted on account of expense, the case was diagnosed as chronic appendicitis. Operation was decided upon. No abnormality was found except with the appendix, which appeared fibrous. There were no bands or adhesions around the appendix, but as all other organs were normal, we felt justified in calling the condition chronic appendicitis. There was no pathologist at the hospital then and no pathological examination was made, so we are not sure whether the appendix was diseased or not. In any event, the appendix did not appear to be the seat of much trouble. It was hoped though that the appendix was at fault, and that its removal would relieve the trouble. About three months after the operation she had an attack similar to those she had complained of previously. I saw her during this attack, and a microscopic examination of the urine revealed pus. The interval between the attacks did not show any pus in the urine. Only for a few days at the time of the attacks did the urine reveal any pus from microscopic examination, and that is the reason we did not find any pus at the time of the operation. She continued to have similar attacks at fairly regular intervals, and finally I convinced her of the necessity of having her ureters catheterized. Catheterization of the ureters revealed a stricture of the right ureter. The stricture was dilated and she has had no attacks of pain nor any pus in the urine for six months. It seems evident that the stricture was the cause of the original attacks.

Mrs. J. C. D. was first seen July 31, 1925, at 6 A. M. She was taken suddenly ill about two hours previously with acute pain in the right iliac region. There was considerable nausea and she had vomited twice. There was tenderness and some rigidity over McBurney's

point. When asked where her pain was located, she put her hand exactly over McBurney's point. She had her thighs partly flexed on her abdomen. Her temperature was 99 F., and her pulse was 96. It appeared to be a typical case of acute appendicitis. She was sent to the hospital to have laboratory tests made, and with operation in view. I expected to find a leucocytosis, but the blood count was normal and the urine was loaded with pus. This was an attack of acute pyelitis exactly simulating acute appendicitis. General measures for pyelitis were instituted and she made a prompt recovery without any local treatment.

TREATMENT.

The treatment of pyelitis consists of absolute rest in bed until all of the acute symptoms have subsided. Regulation of the bowels is important and should not be overlooked. Water should be forced by mouth, though it should not be forced to the extent of causing congestion of the kidney, but that danger is not great and we usually give too little water instead of giving too much. Some prefer giving hexamethylenamin from the beginning, but others prefer giving potassium citrate for the first few days and when the fever drops to change to hexamethylenamin. Perhaps the majority prefer the latter method. When giving hexamethylenamin, it will be necessary to give sodium acid phosphate if the urine is still alkaline. Hexylresorcinol is very useful if the pyelitis is due to the streptococcus or staphylococcus, but it is not so useful against the colon bacillus, especially if there are many organisms present. When giving hexylresorcinol, it is advisable to decrease the fluids so a greater concentration of the drug will be secured.

The diet should be very bland, and the bulk of it should consist of milk or butter-milk. Cereals are admissible. As the condition improves, the diet can be gradually increased.

In the acute cases it is advisable not to use local or instrumental treatment until after the acute symptoms subside, and then only when the condition is not improving. In stubborn and resistant cases the most effective treatment is pelvic lavage. Of all the drugs used for pelvic lavage, the most frequently used is silver nitrate in strengths of from one to two

per cent, and it probably is the best. Another drug gaining favor is mercurochrome. It is used in solutions of from one to five per cent. It is well to remember that any drug seems to lose its effectiveness after a certain period, and that it is well to interchange them; this applies to other conditions as well as pyelitis. Establishing drainage in pelvic lavage is the important factor, and the drug used is of minor importance. In some cases it is necessary to leave in a catheter for a few days to establish sufficient drainage. Before a case can be declared cured, it is necessary to secure negative microscopic findings as well as negative cultures. In the treatment of pyelitis, as well as in other conditions, it is necessary to eradicate all foci of infection, and this especially applies to the chronic cases.

In pyelitis of pregnancy, if the general measures outlined above do not suffice, the proper procedure would be pelvic lavage, more radical measures not being justified until pelvic lavage has been given a thorough trial. It is surprising how quickly the severe cases of pyelitis of pregnancy respond to pelvic lavage, and no one would be justified in taking radical steps until lavage had proven not to be useful. Of course, it is obvious, if there exists a surgical condition of the urinary tract which causes the pyelitis, it will have to be corrected before we could expect to relieve the pyelitis by pelvic lavage.

Pyelitis due to renal tuberculosis is best treated surgically, provided only one kidney is diseased. Unilateral renal tuberculosis is an absolute indication for early nephrectomy. Involvement of the ureter and bladder usually subsides or the condition improves after nephrectomy, but if there is much involvement of the ureter it should be resected near the bladder. Tuberculin should be given after nephrectomy. Nephrectomy is contraindicated in bilateral renal tuberculosis, unless there is only slight involvement on the side not to be operated upon. Nitch reports the following results following nephrectomy for renal tuberculosis two and one-half years after operation: dead, twelve per cent; cured, fifty-two per cent, and the remainder suffering from urinary symptoms.

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THE ROLE OF CORRECTIVE EXERCISES IN PTOSIS.*

By J. BLAIR FITTS, M. D., Richmond, Va.

Ptosia, "drop stomach", "drop heart", "fallen viscera", cover a much wider range of changes than are usually conveyed by their terminology. To consider these changes more rationally, it is essential to review the anatomy of the parts. Almost as much of the cavity of the abdomen as of the thorax lies under shelter of the ribs. The upper boundary is made up of the two domes of the diaphragm, the liver fitting into the right, part of the stomach and spleen into the left. About 20 feet of small and 5 feet of large intestine occupy the greater part of the cavity. The kidneys, pancreas and generative organs complete the contents. The size and shape of the abdominal cavity depend on two main factors; the excursion of the diaphragm and tone of the abdominal muscles. The intra-abdominal fat and shape of the thorax also play a part.

There are two distinct types of ptosis, congenital and acquired.

The congenital type is very characteristic and is often classified as *asthenia universalis congenita*, *splanchnoptosis*, *visceroptosis*, etc. To this class belong the thin, narrow chested, non-athletic individuals. Head held forward, shoulders dropped and forward, chest flat, with very slight diaphragmatic excursion, abdomen relaxed, flat above, pendulous and flabby below; hyperextension of spine, dorsal kyphos (dorsal round back); very often relaxed, back knees with sagging, pronated feet. Peripheral circulation sluggish, hands and

*Read before the Richmond Academy of Medicine.

feet cold and sweaty, with tendency to cyanosis. Mucous membranes pale and anaemic looking beyond the blood picture.

Their complaints are multitudinous, from the simple hypotension, practically always found, with its loss of mental and physical vitality, to the patient, who feels that "I can't get my breath", "Am about to go away", and is fearful continuously of dying. Nervous indigestion and dyspepsia are almost constant, constipation and painful menstruation, cyclic vomiting, pain and fullness in epigastrium, with queer feelings about the heart, often backache and lack of all desire except to lie down and rest. These patients present a pitiful figure, and it is largely due to our lack of patience with them when the pharmacopeia runs out of drugs, that the chiropractors and such cults are being so greatly patronized.

Recumbency is the one means of relief adopted by practically all these patients. This of itself is suggestive of the correct form of treatment but we have been mighty slow in making use of it. Dr. George W. Wagoner has put the whole principle of treatment on a firm, indisputable basis by proving that there is normally a negative intra-abdominal pressure and that this pressure is markedly increased in the splanchnoptotic when assuming the erect position, returning to normal when recumbent. The negative pressure is influenced by respiratory movements and more by the tone of the abdominal musculature.

This increase in negative abdominal pressure explains practically all of the above mentioned symptoms. With increase in pressure, there is an engorgement of the whole splenic circulation, which, when long continued, not only tends to give trouble in this region but at the same time drains and deprives the whole peripheral circulation of the necessary blood supply. The systolic pressure is lowered and the patient soon feels tired and unable to carry on his work. With recumbency, some of the congestion is relieved and a more normal state of circulation set up.

This congestion involves the whole splanchnic area and the symptoms and sequelae are too numerous to enumerate here. Following the findings of Wagoner to their logical conclusion, the treatment is very simple,—correct as much as possible the loss of tone of the abdominal muscles at the same time giving support and correcting the posture. Gen-

eral exercises are of course of great value but, in this type of splanchnoptotics, what is needed is development of respiratory and abdominal musculature and unless these are looked after especially, general exercises do not give results. Breathing exercises are used to elevate the ribs and costal angle, thereby using the pumping action of the diaphragm on the whole splanchnic system and giving more room for the thoracic and abdominal viscera; abdominal exercises to support and hold up the viscera and prevent increase of negative intra-abdominal pressure in the erect posture; lying prone over a rolled-up pillow to throw the abdominal contents into more normal position and relieve congestion. Support to the lower abdomen is almost essential in the majority of cases. If the tone of the abdominals is very low, they are unable to take up the load for sometime and should not be expected to do so. A very good therapeutic test is strapping the lower abdomen. There are very few cases in which support can not be abandoned in a comparatively short space of time.

I would like to state here that I believe a great many of the so-called undernourished and undeveloped children come under this heading and that they will be more benefited by corrective exercises than by stuffing with food.

The second type of ptosis, acquired, may be classified as follows, in order of frequency:

1. Postoperative;
2. Post-partum;
3. Following prolonged illness.

Post-operative results would show a much larger percentage of cures were the matter of the abdominal wall taken more into consideration. We would never think of operating on the arm or thigh muscles, as the abdominals are operated, without afterward seeing that the traumatized muscles were brought back to normal tone by exercises, massage, etc. Even in fractures without much muscle trauma this is necessary. The same should be done with the belly muscles.

Relaxed abdomens with ptosis and backache are very frequent following laparotomies and prevent what would otherwise be brilliant results. The majority of surgeons advise some form of abdominal support, but why stop there? Abdominal exercises should be begun from six to eight weeks following all laparotomies and continued for at least six months. Support may be used at the same

time if desired but can usually be discarded in about three to four months.

During and following childbirth, the average woman is sadly in need of toning up her abdominals both to help with her delivery and take up the slack after delivery. During pregnancy, the gravid uterus acts as more or less of a support to the general abdominal viscera, but after it is emptied, the whole burden is thrown on the relaxed, tired-out abdominals, with the result that in the great majority of cases there is constipation, pain in abdomen and backache. At this time the musculature needs support as well as exercise.

Following prolonged illnesses, there is a marked loss of general muscle tone along with a decrease of intra-abdominal fat. As long as recumbency is maintained, there is not a great need of visceral support, but once the erect position is assumed, the weakened abdominals are unable to bear up under the strain and the patient has a general splanchnoptosis to contend with.

This paper is not attempting to place all of the ills of the flesh on lack of abdominal exercises, but to bring to your attention a very useful and necessary part of your medical armamentarium, which is simple and can be used by all, and which will cut down the dissatisfied patients who are seeking relief from so many cults.

318 West Franklin Street.

Correspondence

Let The State Health Department Help You in Diagnosis of Suspicious Cases.

Richmond, Va., Aug. 1, 1927.

TO VIRGINIA DOCTORS:—

We believe that we should call your attention to the possibility of typhus fever in Virginia. There have been called to our attention recently two cases in widely separated areas with whom there could have been no contact. Each is strongly suspicious of this disease. The blood gives a positive agglutination to Protous X 19 and negative to both typhoid fever and para-typhoid. The Hygienic Laboratory looks upon this test as positive for typhus.

The cases had a sudden onset, one ushered in by a chill, and the other a doubtful chill, loss of appetite, definite malaise, one case gas-

tric disturbance. From the continuance of the temperature typhoid was suspected. Four or five days after the onset a peculiar eruption appeared on the body and extremities, absent on the face. The rash was petechial in character. The rash is unlike that of scarlet fever, measles, typhoid fever and smallpox.

The abdominal symptoms were irregular: some days the abdomen was more or less flat, other days tympanitic. Nervous symptoms and mental cloudiness have marked these cases. The facies resembled typhoid fever.

If you have suspicious cases, let us know and we will gladly aid in the diagnosis. Specimens for blood cultures should be sent in. Mailing cases will be sent you upon request. In all such cases great care should be taken to prevent vermin, as it is believed this disease is carried by the body louse, possibly also the bed bug.

ENNION G. WILLIAMS,
State Health Commissioner.

Bibliotheca Obstetrica

William Hunter.

Hunter (William) [1718-83]. *Anatomia uteri humani gravidi tabulis illustrata*. Anatomy of the human gravid uterus exhibited in figures. 19 l., 34 pl. elephant. fol. Birmingham, J. Baskerville, 1774.

For Biography see: Fox (R. H.) William Hunter, anatomist, physician, and obstetrician; with notice of his friends Cullen, Fothergill, Smellie, Baillie, etc. *Lancet* 1897, 1:504; also: Andrews (H. R.) William Hunter and his work in midwifery. *Brit. M. J.*, 1915, 1:277.

William Hunter was born at Long Calderwood in 1718 of an old Scotch family. He began early to study for the ministry, but changed his mind because he "could not subscribe to the dogmatical articles of faith." From 1737 to 1740 he lived with Dr. Cullen and the two men had some sort of an arrangement whereby one attended the medical school while the other looked after the practice. In 1740 Hunter attended Alexander Monroe's lectures in Edinburgh. The next year he went to London and lived for a short time with Smellie. Later he became the assistant to Dr. Douglas and at same time was a pupil at St. George's Hospital. In 1846 he began to lecture to a society of navy surgeons first on operative

surgery and later on anatomy. At first William Hunter practiced both surgery and obstetrics, but he always had an aversion to surgery. In 1748 he made a tour on the Continent and at Leyden visited the great anatomist, Albinus. He was greatly impressed with Albinus' admirable injections. About this time William's younger brother, John Hunter, came

married; he had no country house; he looks, in his portraits, a fastidious, fine gentleman; but he worked till he dropped and he lectured when he was dying."

William Hunter's great work on the anatomy of the human gravid uterus is characteristic of the man. He was twenty-four years in completing it. He employed the best artist for

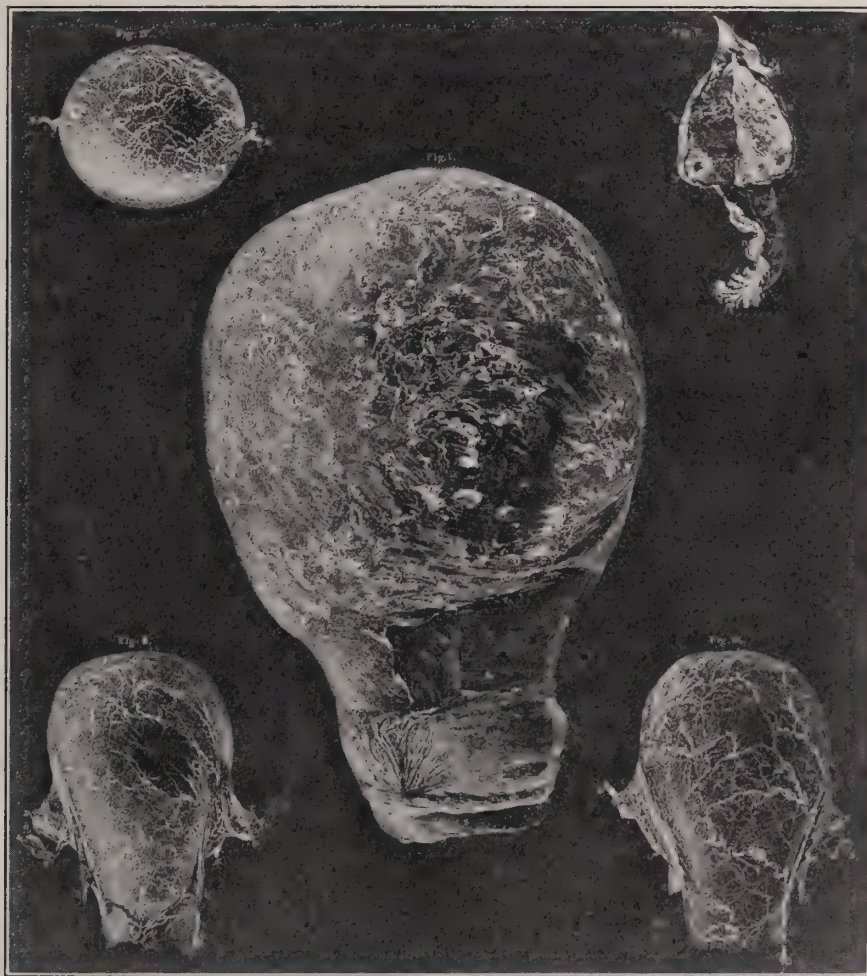


Illustration of uterus that had first been injected with colored wax and turned inside out. The placenta and the membranes were then scrubbed off with a brush. The placental site is shown to the right of the center of the uterus, with the large maternal blood vessels that supplied the placenta, torn across. (Courtesy of the Army Medical Library).

to London as his pupil. The fame of the two brothers grew rapidly, the one in anatomy and surgery, the other in anatomy and midwifery. William Hunter is said to have been the first man in any country to attend a queen in confinement, and he spent 100,000 pounds on his museum in Great Windmill Street. His character is summed up by Paget thus: "He never

the illustrations and insisted that they make the drawings life size directly from his preparations. The drawings were made by Edward Edwards, Alexander Cozens, Blakey, and Rymsdyk. The copper plates were engraved by Ravenet, Scotin, Major, Muller, Grignion, Canot, Maleuve (or Maleuvre), Mitchele, Mechel, Aliament, Fongerion, Bryer,

Rymsdyk, Worlidge, Powle, and Robert Strange. The only adjective that adequately describes the finished work is exquisite. The artistic excellence compels our admiration, and the anatomic exactness takes us at once from the crude medieval ideas that till then pertained, to the distinctly modern conception of the relationship of the fetus to the uterus. There was no transition period. This great anatomist-obstetrician proved that the fetal and the maternal circulations were separate and distinct, one from the other, and that the desidua was uterine in origin. According to Choulent, Leonardo di Vinci was the first to correctly depict the position of the fetus *in utero*, but his drawings were not published and were unknown until comparatively recent times. Hunter's work had immediate effect on medical teaching. It went through a number of editions. The plates, re-engraved in the original size with text (unfortunately) corrected by Hunter's nephew, Matthew Baillie, appear in Caldani's *Icones Anatomicae*, Vol. III, and as a separate volume under the title, William Hunter's Anatomical Description of the Human Gravid Uterus and its Contents, London, 1794. A new edition from the original well preserved plates was published in London by Edward Lumey in 1815. Rigby brought out an octavo edition in 1843, and L. F. von Froriep an edition in German in 1802. The Sydenham Society acquired the original plates and in 1851 published an edition from them by a lithograph process for distribution among its members.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

To the Ladies of the Auxiliary:

Mrs. John O. McReynolds, President of the Woman's Auxiliary to the American Medical Association, at the meeting in Washington, in May, addressed the ladies as follows:

"I wish to urge the women of the Auxiliary to leave nothing undone to encourage their husbands in attending medical meetings, being sure to go along with them.

"In order that we may accomplish the beneficent results our impulses are calling for, we need the wise counsel and united strength of the women whose lives are inseparably linked with the ideals of the medical profession and the welfare of the American people. We bow in reverent admiration before the marvelous achievements of the scientific men of the healing art, and our function is to help in the work of enlisting the interest and co-operation of the general public in making more effective the program of progress throughout our country.

"In the evolution of our race, we have become a new factor in the problems of the world. We have become a new force with enlarged opportunities and responsibilities. It remains with us and our wise counsellors in the medical profession to determine the avenues through which our pent-up energies shall be directed. We are an organized army, growing by leaps and bounds. We are already in the field. Our Bulletin is telling the story of the victories won in our first engagements.

"Read the Bulletin and confer with your husbands, whose experience and sympathy will be of inestimable value, and bring with you the ripened fruits of your thought and patriotic purposes. When I think of all the Auxiliary has accomplished in the few years of its existence and recognize its wonderful possibilities and opportunities ahead of us, I feel incompetent to measure up to the responsibilities of a National Auxiliary President, but when I remember the wonderful ability of the women who have led in all our achievements, I feel confident that they will give me their indispensable assistance and sympathetic support. Without some sacrifices we cannot reach the goal of our highest possibilities.

"But if men like Dr. Jesse Lazear and his courageous colleagues could so heroically sacrifice their lives by allowing themselves to be bitten by mosquitoes known to have sucked the blood of dying yellow fever patients, in order to bring about the eradication of this deadly disease, surely the wives of the medical profession should be willing to give some of their time and talents in the cam-

paign which the physicians of America have launched to protect the health and lives of our people. We should lead in this crusade for health and happiness and by consecrated and concerted efforts under the direction of their husbands, the wives of the physicians of America can develop in the most effective way the present dormant interest of the general public in the vital question of health. Let us combine our energies and influence to stimulate a deeper appreciation of our own great heroes who are battling against the physical enemy—Disease. Let us build monuments of enduring service to those who have so heroically given the best in their lives, and even life itself, in conquering the ravages of disease that day after day and year after year are throwing an endless gloom over our land.”

Mrs. McReynolds is not only the President of the Woman's Auxiliary. She is also its mother. It was in her home, in Dallas, Texas, that the first auxiliary was organized. Dr. Jabez Jackson, President of the American Medical Association, said of the retiring President, Dr. Wendell Philips, “it is better to have won love and appreciation than to have built marble halls or have painted wonderful pictures.” That is how the auxiliary feels toward Mrs. McReynolds, and she loves each state and each county auxiliary, as a mother loves her child.

In organizing, Mrs. McReynolds wishes the doctors' wives always to remember that the auxiliary has the hearty approval of the American Medical Association. However, there are a great many doctors who are a little afraid of an auxiliary, because they can see the dangers into which the women can so easily be led. Each county auxiliary must have the approval of its Medical President, without which the auxiliary cannot be organized. With his co-operation and assistance the auxiliary can be of great help to the profession.

The Truth About Medicine

In addition to the articles enumerated in our letter of May 28th, the following have been accepted:
H. K. Mulford Co.

Antivenin (Nearctic Crotalidae)—Mulford.

NEW AND NON-OFFICIAL REMEDIES

Neonal.—N-Butylethylbarbituric acid.—Neonal dif-

fers from barbital (diethylbarbituric acid) in that one of the ethyl groups of the former is replaced by a normal butyl group. The actions and uses of neonal are essentially similar to those of barbital, but it is about three times as active as the latter; hence it is used in correspondingly smaller doses. It is claimed that it exerts a sedative action to an exceptional degree, and that it is useful therefore in high nervous tension, neuroses and other conditions in which a sedative is required. Neonal is supplied in powder and in 0.1 Gm. tablets. Abbott Laboratories, North Chicago, Ill. (Jour. A. M. A., June 4, 1927, p. 1802).

Pollen Extracts—Cutter.—These are now marketed in capillary tubes and in packages consisting of three vials representing graduated concentrations. In addition to the products listed in New and Non-official Remedies, 1927, p. 34, the following have been accepted: Alkali Weed Pollen Extract—Cutter; All Scale Pollen Extract—Cutter; Box Elder Pollen Extract—Cutter; Burning Bush Pollen Extract—Cutter; Corn Pollen Extract—Cutter; Foxtail Pollen Extract—Cutter; Mountain Cedar Pollen Extract—Cutter; Tumbleweed Pollen Extract—Cutter; Western Water Hemp Pollen Extract—Cutter. Cutter Laboratory, Berkeley, Calif.

Pollen Extracts (Glycero-Saline)—Mulford.—Liquids obtained by extracting the dried pollen of plants with a liquid consisting of 66% per cent of glycerin and 33½ per cent of saturated sodium chloride solution. For a discussion of the actions and uses see Allergic Protein Preparations (New and Non-official Remedies, 1927, p. 23). Pollen extracts (glycero-saline)—Mulford are marketed in bulk treatment packages and in treatment sets consisting of: First series (dose 1 to 5, inclusive); second series (doses 6 to 10, inclusive); third series (doses 11 to 15, inclusive); complete series (doses 1 to 15, inclusive); fourth series (doses 16 to 20, inclusive). The following preparations have been accepted: Lamb's Quarters Pollen Extract (Glycero-Saline)—Mulford; Ragweed Pollen Extract (Glycero-Saline)—Mulford; Timothy Pollen Extract (Glycero-Saline)—Mulford; Wormwood Pollen Extract (Glycero-Saline)—Mulford. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., June 11, 1927, p. 1891).

Ethylene—C. L. P.—A brand of ethylene for anesthesia—N. N. R. For a discussion of the actions and uses see New and Non-official Remedies, 1927, p. 50. Certified Laboratory Products, Glendale, Calif.

Protein Extracts Diagnostic—P. D. & Co.—In addition to the products listed in New and Non-official Remedies, 1927, p. 40, the following have been accepted: Alfalfa Pollen Protein Extract Diagnostic—P. D. & Co.; Bean (Kidney) Protein Extract Diagnostic—P. D. & Co. Parke, Davis & Co., Detroit.

Typhoid Vaccine (Prophylactic) (New and Non-official Remedies, 1927, p. 369).—This product is also marketed in packages of one 20 c.c. vial containing 1,000 million killed typhoid bacilli per c.c. Parke, Davis & Co., Detroit.

Typhoid-Paratyphoid Vaccine (Prophylactic) (New and Non-official Remedies, 1927, p. 369).—This product is also marketed in packages of one 20 c.c. vial containing 1,000 million killed typhoid bacilli and 750 million each of killed paratyphoid bacilli A and B per c.c. Parke, Davis & Co., Detroit.

Horlick's Maltose-Dextrin Milk Modifier.—A mixture containing approximately: maltose, 63 per cent; dextrin, 19.5 per cent; protein, 11.5 per cent; fat, 1.4 per cent; moisture, 2 per cent; and ash, 2.6 per cent. On the claim that maltose is more readily assimilable than other forms of sugar, this product is proposed to supplement the carbohydrate of cow's milk. Horlick's Malted Milk Corporation, Racine,

Wis. (Jour. A. M. A., June 18, 1927, p. 1967).

B. *Acidophilus* Milk—Fairchild.—A whole milk cultured with *B. acidophilus*. It contains not less than fifty millions of viable organisms (*B. acidophilus*) per c.c. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations, see New and Non-official Remedies, 1927, p. 216, "Lactic Acid-Producing Organisms and Preparations." Fairchild Bros. & Foster, New York. (Jour. A. M. A., June 25, 1927, p. 2035).

PROPAGANDA FOR REFORM

"Liquid Arvon" Dermatitis.—Liquid Arvon, put out by the R. L. Watkins Company, Cleveland, has been reported to contain 4.84 per cent of alcohol by volume, 1.49 per cent of glycerin, and 0.42 per cent of potassium carbonate, with salicylic acid present and probably resorcinol. This hair tonic preparation is reported to have caused severe dermatitis of the scalp. (Jour. A. M. A., May 7, 1927, p. 1505).

Report on Window Glass Substitutes.—The Council on Physical Therapy publishes a report of work carried out under its auspices, to determine the efficiency of certain window glass substitutes for transmitting the antirachitic rays of sunlight. The transmission of ultraviolet rays was determined both by spectroscopic analysis and by the biologic effects of the transmitted light on the growth of chickens. The following materials were tested: Vitaglass (transparent), Cel-O-Glass, Flex-O-Glass and Corning Glass. Vitaglass and Corning Glass are stated to be true glasses. Celoglass is composed of wire-mesh screen filled with an apparently celluloidinous material. Flexoglass is a thin, fairly loosely woven cloth treated with a paraffin-like substance. The Vitaglass and the Celoglass transmitted a large percentage of the sun's ultraviolet rays since the chickens reared behind these glasses showed similar development as those which received ultraviolet radiation from the artificial source. Chickens which received the sunlight through Flexoglass did not show the same growth as did the irradiated controls, but did gain more rapidly than those receiving sunlight through window glass. The Corning Glass was received too late for the biologic test, but from the spectroscopic measurements it is evident that this glass is equal to the best of those tests in its ability to transmit the antirachitic rays of the sun. The study leads to the conclusion that there are now available materials for glazing windows which do not possess the fault of window glass in excluding the health-giving rays of sunlight. (Jour. A. M. A., May 14, 1927, p. 1562).

Poisonous Effects of Oxygen.—In animal experiments a concentration of oxygen of more than 70 per cent of one atmosphere may produce symptoms of oxygen want. The manifestations are drowsiness, anorexia, loss of weight, dyspnea, cyanosis and, finally, death. Postmortem examination showed that diffuse hemorrhagic edema had developed, with such injury to the diffusion membrane of the lung that, in spite of the increased head of pressure, the arterial blood remained unsaturated. With this knowledge of the effects of over-rich oxygen mixtures, oxygen may be used to greater advantage therapeutically. (Jour. A. M. A., May 14, 1927, p. 1570).

Injection Treatment of Varicose Veins.—In the face of growing enthusiasm for the treatment by injection of varicose veins of the leg and hemorrhoids, it is well to consider a recent report of a death after injection treatment of varicose veins. A man, aged 60, who had dilated veins of the left leg, was treated at short intervals with five injections of a 20 per cent sodium chloride solution. Serious symp-

toms developed, but the patient overcame these. However, about one month after the injection treatment he died suddenly of embolism of the pulmonary artery. One case proves nothing, but one disaster is an indication for caution. (Jour. A. M. A., May 14, 1927, p. 1571).

Effects of Cinchophen.—Cinchophen is not directly depressant to the heart muscle. The circulatory collapse produced by the toxic doses is due to effect on the vagus and vasomotor centers. It occasionally produces local irritation in the digestive tract, as indicated by anorexia, nausea, and other digestive disturbances. There may be scarlatiniform, urticarial or purpurial skin eruptions, and edema with fever. In large doses it may produce albuminuria, though less so than salicylate. The administration of sodium bicarbonate is believed to lessen gastric irritation. A liberal amount of water should always be given along with cinchophen. The use of neocinchophen obviates the gastric irritation and lessens the possibility of toxic effects. (Jour. A. M. A., May 14, 1927, p. 1586).

Prevention of Scarlet Fever.—The ideal procedure in the case of a child exposed to scarlet fever is to make a skin test to determine whether the child is susceptible or immune to scarlet fever and at the same time make nose and throat cultures to learn whether the child is infected with hemolytic streptococci. If the skin test is entirely negative, further preventive measures are not indicated unless the cultures show the presence of hemolytic streptococci, in which case the child should be kept away from other susceptible children. In case the skin test is positive, the next step depends on the results of the nose and throat cultures. If these are negative and further exposure can be avoided, active immunization with toxin should be begun at once. If the skin test and the nose and throat cultures are positive, the administration of a prophylactic dose of scarlet fever antitoxin is justified. (Jour. A. M. A., May 14, 1927, p. 1587).

Lens Antigen.—In 1924 the H. K. Mulford Company requested consideration of "Lens Extract," by the Council on Pharmacy and Chemistry, presenting as evidence for the value of the preparation the reports by A. E. Davis. The Mulford Company was informed that the evidence which it had submitted had been considered by the Council; that the referee to whom the product was assigned had consulted with a number of ophthalmologists, all of whom had agreed that the evidence for its usefulness was not acceptable, and that the Council had postponed the consideration of Lens Extract until more evidence becomes available to demonstrate its therapeutic value. Since then Dr. Davis has published two further articles. The Mulford Company has, however, not requested further consideration of its "Lens Extract," and the Council has taken no further action regarding it. (Jour. A. M. A., May 28, 1927, p. 1749).

E. E. Paddock.—According to available records, E. E. Paddock, of Kansas City, was born in 1867, obtained a diploma from the Kansas City Medical College in 1895, and was licensed in Missouri the same year. Since that time he has practiced in a number of Missouri towns. Paddock's principal quackish activity has been as an alleged specialist in gall-bladder disease. The follow-up paraphernalia conforms strictly to the orthodox methods of the mail-order quack. Those who answer his "gall-stone cure" advertisements, but fail to send in an order, are circularized later by the Lyle Chemical Company detailing a home treatment for "painful menstruation." This, at least, was the case about a year ago.

As an advertiser, Paddock has patronized such publications as the *Saturday Blade*, *Police Gazette*, *Chicago Ledger*, *Household Guest*, and the *Chicago Herald and Examiner*. (Jour. A. M. A., May 28, 1927, p. 1749).

Felsol.—In the advertising of the American Felsol Company, Felsol is claimed to have the following composition: "Metozin 0.9 (containing Phenazon 0.25, Anilipyrin 0.4, Jodopyrin 0.25), caffein 0.1, digitalis and strophanthus glycosides 0.0015 and the alkaloid of lobelia inflata 0.005." Felsol is a typical illustration of an irrational shotgun mixture. One of the claimed ingredients, metozin, is stated to contain phenazon (antipyrine), anilipyrin (a mixture of antipyrine and acetanilid) and iodopyrin (a compound of antipyrine and iodine). In addition to these multiple antipyretic ingredients, Felsol is claimed to contain four other active drugs. The advertising refers to Felsol as a "harmless remedy" which may be given "for any kind of bronchial or cardiac asthma, without the necessity on the part of the physician to embark on long theoretical considerations as to the underlying cause of the attack." A product that contains preparations of digitalis, strophanthus and lobelia is not a "harmless" remedy. The recommendation for the indiscriminate use of this product is to be strongly condemned. A recent circular shows that the firm is increasing the danger of indiscriminate use by exploiting it directly to the public. (Jour. A. M. A., May 28, 1927, p. 1750).

The Creoco Remedy Co.—D. H. Brown, M. D., of Jacksonville and St. Augustine, Fla., is a negro quack who for years has been swindling consumptives. This man's particular piece of quackery has in the past gone under the name "Dr. Brown's New Consumption Remedy" and he made his appeal especially to those unfortunate members of his own race who were afflicted with tuberculosis. More than ten years ago Brown was prosecuted under the Federal Food and Drugs Act because he was crude enough to make claims on the trade package of his nostrum to the effect that it was a remedy for consumption, pneumonia, and all diseases of the lungs. Subsequently Brown ceased making fraudulent claims on the trade package, but continued to sell his worthless nostrum, making the same false and fraudulent claims in newspaper advertisements and circulars. In 1923 a fraud order was issued by the Post Office Department against D. H. Brown and his concern known as the Magnolia Remedy Co. Then Brown attempted to continue the business by creating the Creoco Remedy Co., selling the same preparation under the name of this company, and calling the preparation "Creoco". Now a supplemental fraud order against the Creoco Remedy Co. has been issued. (Jour. A. M. A., April 23, 1927, p. 1340).

International Health Institute.—During the past few months the medical profession has been flooded with letters from the "International Health Institute, Inc.," 2061 Broadway, New York City. According to its "sales talk," the International Health Institute purposes to sell to the public a urinalysis and periodic physical examination service "supplemented with a complete course in body-building and rules of right living." While this is the nominal *raison d'être* of the concern, evidence is accumulating to confirm the suspicion that the International Health Institute, Inc., is primarily a promotion scheme. Letters are sent to physicians stating that the "Institute" desires to establish "a resident physician and member of our Advisory and Hygiene Reference Board"; invites the physician to join and to purchase stock. It is

stated that the first source of income is the service that is to be recommended by the International Health Institute in selling to the public a periodic physical examination and urinalysis, for which the institute will charge \$37.50, but it is explained that a greater opportunity for financial betterment will come from the activities of the International Health Institute in recommending to the lay subscribers that they use certain health foods; certain "approved exercising devices"; certain "hygienic appliances"; and certain books all of which the institute will sell. (Jour. A. M. A., April 30, 1927, p. 1435).

"Iodex" in Thyroid Disturbances.—A pamphlet published by the Pharmacal Advance Press, the house organ of Menley and James, Ltd., the firm that sells Iodex is devoted to promoting the use of iodex ointment in the treatment of systemic goiter by rubbing ointment into the skin over the thyroid gland twice a day, and also recommending iodex ointment for a number of other pathologic conditions. The Council on Pharmacy and Chemistry has reported that the preparation was practically devoid of free iodine, that its composition was incorrectly stated, that the total iodine content was only about three-fifths of the total amount of iodine claimed, and that therefore its use for securing iodine effects is unwarranted. Almost any intelligent physician knows that the attempt to treat systemic goiter by rubbing such an ointment into the skin over the goiter is preposterous. However, this is but one of many ridiculous statements in the pamphlet mentioned. (Jour. A. M. A., April 30, 1927, p. 1438).

Uriseptin.—An examination of uriseptin made in the A. M. A. Chemical Laboratory was published in 1908. The report brought out that while uriseptin was claimed to contain formaldehyde combined with lithium in the presence of a concentrated extract of corn silk and couch grass, the examination showed that uriseptin was marketed under a deliberately false claim, in that it did not contain the lithium formaldehyde compound, but instead contained hexamethylenamine (methenamine) as its chief constituent, and also lithium benzoate. (Jour. A. M. A., April 30, 1927, p. 1438).

What is an Antiseptic?—While physicians understand that a germicide may produce effects on an infected area in a brief period which can be produced by an antiseptic only through prolonged contact, the general public understands these terms as synonymous. In consideration of this condition, the U. S. Bureau of Chemistry, which is charged with the enforcement of the Food and Drugs Act, has recently come to the conclusion that the term "antiseptic" when used in the labeling of a medicinal product is objectionable unless the preparation when used as directed will actually destroy micro-organisms. The medical profession will, of course, agree at once that the position taken by the Bureau of Chemistry is in the public interest. (Jour. A. M. A., April 30, 1927, p. 1420).

The Origin of Vitamin D.—The antirachitic substance, vitamin D, occurs in some fish oils—notably in cod-liver oil—in egg yolk fat, and to a small extent in milk fat. As a rule the vegetable fats are not antirachitic. A few instances of undoubted potency in oils of plant origin have been ascribed to the effect of solar irradiation of the products incident to their commercial preparation. This is true of coconut oil prepared from sun-dried copra. Whereas the other vitamins appear to originate in the vegetable kingdom, this is not the case with vitamin D. Experiments carried out to learn the

origin of vitamin D in the cod-fish, raise the question as to whether vitamin D cannot actually be synthesized by certain species. These experiments also revealed that the oils of the herring and sardine rival the cod in antirachitic potency. (Jour. A. M. A., June 4, 1927, p. 1807).

Prodigaluz, a Spanish Nostrum Sold to Gullible Americans.—A nostrum for the alleged cure of all diseases of the eye has been exploited during the past year in some American newspapers and magazines under the name of "Prodigaluz". The preparation was claimed to be a general specific for diseases of the eye and to cure trachoma, ulcerations of the cornea, cataracts, gonorrheal conjunctivitis, progressive myopia, etc. The federal authorities reported the preparation to be a slightly turbid liquid, having a winelike odor, and containing alcohol, potash, zinc sulphate and tannin. The Post Office Department issued a fraud order which will prevent the exploitation of this nostrum through the mails. (Jour. A. M. A., June 4, 1927, p. 1831).

Bulgara Tablets—H. W. & D., Culture of *Bacillus Bulgaricus*—Lederle, Culture of *Bacillus Bulgaricus*—Fairchild, Galactenzyme Tablets, Lactampoule, Lactic Bacillary Tablets—Fairchild, and Vitalait Culture of *Bacillus Bulgaricus* Omitted from N. N. R.—The Council on Pharmacy and Chemistry decided to retain *Bacillus bulgaricus* preparations in New and Non-official Remedies, provided that the claims for these were revised to show such preparations to be of value only in the preparation of soured milk, and, further, that all claims for their intestinal implantation and for their value as external applications be discontinued. The Council reports that the following products have been omitted from New and Non-official Remedies because acceptable revisions of the claims were not made: **Bulgara Tablets**—H. W. & D. (Hynson, Westcott & Dunning); Culture of *Bacillus Bulgaricus*—Lederle (Lederle Antitoxin Laboratories); Culture of *Bacillus Bulgaricus*—Fairchild, Lactampoule, Lactic Bacillary Tablets—Fairchild (Fairchild Bros. & Foster); Galactenzyme Tablets (Abbott Laboratories); and Vitalait Culture of *Bacillus Bulgaricus* (Vitalait Laboratory of California). (Jour. A. M. A., June 4, 1927, p. 1831).

The Synthesis of Thyroxin.—The announcement by Harington, in 1926, that thyroxin, instead of being a compound of tryptophan, is a tetraiodo derivative of the p-hydroxyphenyl ether of tyrosine, has been followed by a determination of its constitution. Following this, Harington and Barger prepared synthetic thyroxin. This has been shown to be identical with natural thyroxin. Thus, the first artificial production of a naturally occurring biological product, the active principle of the thyroid gland has been accomplished. (Jour. A. M. A., June 11, 1927, p. 1892).

Diabetic Foods.—A recent food inspection decision of the U. S. Department of Agriculture revokes the official definition of so-called diabetic foods, thus automatically placing such preparations in the class of drugs. The government holds that references to any disease condition in the labeling of such articles implies to the public that they are efficacious treatments, and it therefore asks manufacturers and distributors to omit any such references from their trade packages. An investigation showed that "diabetic foods" were being held out to sufferers from diabetes as treatments for their condition rather than as mere diabetic aids in the management of the disease. The action taken is a gratifying official support of the efforts of the Council on Pharmacy and Chemistry to convince manufacturers that therapeutic recommendations should not have a place

on a trade package. However, the Council has taken a liberal attitude and does not object to the naming of diseases on trade packages of medicinal foods, or to a name implying the use of the product in diabetes, provided the advertising makes it clear that the product is not offered as a cure or even as a remedy for the disease. The greater stringency of the attitude of the government arises, no doubt, from the fact that it is acting on the basis of a law, the letter of which refers only to the trade package and label. (Jour. A. M. A., June 11, 1927, p. 1895).

The Florazona Fraud.—The Postmaster General has issued a fraud order against the Florazona Corporation, New York City, debarring it from the use of the mails. The "Corporation" exploited Florazona, which was a bath powder claimed to bring about reduction of weight. The federal chemists found the preparation to be essentially sodium thio-sulphate, with a small amount of baking soda and a trace of iodides and perfume. It was shown that the package of Florazona, which sold for \$3.50, could be manufactured for about 17½ cents. As is common in the advertising of fat-cure swindles, the advertisements for Florazona stressed the claim that, when using the preparation, it was unnecessary to exercise or to diet. Yet, as is also usual in the sale of such fakes, after the purchaser has paid her money, she found that dieting was suggested. (Jour. A. M. A., June 11, 1927, p. 1920).

The Cunningham Tank Treatment.—For some eight years Dr. O. J. Cunningham, of Kansas City, Mo., has been treating certain conditions by putting patients in a tank, under air pressure varying from 10 to 50 pounds to the square inch above ordinary atmospheric pressure. Patients are kept in the tank from a few hours to a month. Dr. Cunningham's thesis is that diabetes mellitus, pernicious anemia and carcinoma are due to pathogenic bacteria of the anaerobic type, and that the oxygen content of the tissues is greatly increased when the patients are put in the tank containing the compressed air. It does not appear that Dr. Cunningham's observations have been confirmed. There is reason to believe that Dr. Cunningham has allowed enthusiasm to run away with judgment. (Jour. A. M. A., June 11, 1927, p. 1921).

Book Announcements

The New Medical Follies. An Encyclopedia of Cultism and Quackery in These United States, with Essays on the Cult of Beauty, The Craze for Reduction, Rejuvenation, Eclecticism, Bread and Dietary Fads, Physical Therapy, and a Forecast as to the Physician of the Future. by MORRIS FISHBEIN, M. D., Editor of the *Journal of the American Medical Association* and of *Hygeia, The Health Magazine*, New York. Boni and Liveright. 1927. 235 pages. Cloth. Price, \$2.00.

Lippincott's Pocket Formulary. By GEORGE E. REHBERGER, M. D., Author of Lippincott's Quick Reference Book. Philadelphia and London. J. B. Lippincott Company. Pocket sized. Leather bound.

United Fruit Company. General Offices: Boston, Massachusetts. MEDICAL DEPARTMENT. FIFTEENTH ANNUAL REPORT. 1926. 355 pages. Paper.

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Editorial

Intravenous Therapy.

It is a salutary sign of medical progress, when an organization of medical men appoints a committee of responsible members to investigate a medical problem and to submit a report of the investigation to the profession. This method of searching for the facts has much to recommend it, particularly at this time when so much confusion exists in important medical and surgical procedures. A consensus of medical minds possesses an untold influence. The crystallization of medical and surgical opinions may be obtained in effective form, by the evaluation of medical and surgical publications by responsible medical bodies. In this day when publications are voluminous, a medium for separating the wheat from the chaff is desirable and important, if not a necessity. In an effort to arrive at a proper judgment of the values of intravenous therapy, a committee was appointed by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. The committee's report is worthy of a first hand perusal. It is particularly worthy of careful reading by medical practitioners who are following this line of therapy. Much of what is written is accepted by all and to the whole of the report general agreement is given.

Editorial reference of this paper* is made with freedom because of the importance of the subject.

INDICATIONS

I. For rapidity of action:

In emergencies: in cases of shock, toxemia and hemorrhage. In these conditions saline, glucose infusions, or less frequently, infusions of gum glucose or Locke's solution are of immediate value in restoring blood volume and in overcoming dehydration.

In severe acidosis: in diabetic coma, for instance, the infusion of saline sodium bicarbonate or glucose solution or a combination of them may be needed as a life saving measure. Insulin may be needed, also, intravenously in connection with the foregoing treatment.

In severe forms of tetany: intravenous use of calcium chloride in proper dilution may be needed.

In increased intravenous pressure: hypotonic solutions of sodium chloride may be administered intravenously.

In acute circulatory collapse: a slowly injected weak solution of epinephrine in physiologic sodium chloride solution may be given.

In sudden heart failure: intravenous administration of ouabain or of amorphous strophanthin may be resorted to; all but moribund cases have been resuscitated by this measure.

In severe malaria: quinine may be given intravenously—with caution.

In severe diphtheria or in neglected cases of this disease: intravenous use of antitoxin has been resorted to and some cases have responded to it favorably.

II. For intensity of action.

In conditions such as diphtheria, tetanus, meningitis, streptococcus infection (scarlet fever), pneumonia, intravenous administration of antitoxic and immune serums may be required when absorption by subcutaneous or intramuscular route is too slow. Such a procedure as this may be needed in order to secure greater intensity of action. In non-specific proteins, administered intravenously, there is induced protein shock.

CONTRAINDICATIONS

1. It is obvious that intravenous therapy is contraindicated when results of equal value may be obtained by usual unquestionable routes. Often too, intravenous administration is contraindicated if conditions of emergency do not exist and less dangerous routes may be as well, if not more safely used.

2. In weakened patients, in the aged, in pa-

*J. A. M. A., Vol. 88, No. 23, page 1798.

tients with hypertension, in patients with heart disease; in patients hypersensitive to one or more proteins; and in patients with drug idiosyncrasies, intravenous therapy is contra-indicated, or at least, is worthy of mature consideration. Certain agents are unsuitable for intravenous administration:—(a) substances of complex composition, (b) imperfectly purified substances, (c) substances which are definitely acid or markedly alkaline, (d) substances which do not yield clear solutions in aqueous mediums or mediums which fail to yield satisfactory colloidal solutions, (e) emulsions of fats and oils: (f) suspensions, unless fine and very dilute, and (g) very potent pharmacologic agents.

3. For volume of dose. In cases when saline and glucose solutions, serums, and substitutes, in large volume are indicated, the intravenous route is advisable. When volumes of 100 c.c. or more are required, the venous is better than the intramuscular or subcutaneous route. Simple hypodermoclysis is an exception here.

4. To avoid irritation or destruction of tissue at the site of injection, the vein is used in injecting arsphenamine, neoarsphenamine, quinine, dye stuffs, colloidal metals, alkali, and other irritants.

5. To obtain direct action in the blood stream, quinine in malaria, dyes and colloidal metals in sepsis are used.

TECHNICAL CONSIDERATIONS IN INTRAVENOUS THERAPY

Only cursory comment can be made here upon a matter of extreme importance and large detail. A few observations may be pertinent, however, following the line of publication before us.

Solutions employed in intravenous administration are of first importance. Distilled water may contain pyogenic substance; although not present in freshly distilled water, pyogenic contamination may appear after a few hours, and from such patients may get reactions that are untoward. Freshly distilled water carefully protected is safe and is best for venous administration. Triple distilled water, not referred to in the article before us, is being employed now but as it is only of recent use, the efficacy of it deserves study. Agents or drugs used in intravenous therapy should be of assured purity. Serious systemic reactions if not deaths, have resulted from ill advised use of drugs. Even in cases of malarial fever, in-

travenous administration of quinine, a drug so thoroughly indicated in this disease, sudden death has occurred.

All solutions for venous administration should be as near as possible to reaction of normal blood, which is slightly on the alkaline side of neutrality. Should it be impossible to attain this state of approximation of normal alkalinity of the blood, administration should be made in minute amounts; and should be slowly and cautiously given. Of course, in the instance of profound toxemia, as acidosis, more freedom may be felt in administration of alkaline solutions. Isotonicity of the solutions with the blood are important in use of large volumes of fluids in the vein. Rate of injection is a matter of prime significance. Generally, slow and cautious introduction of the fluid in the vein is important. There is danger of overwhelming the heart; of the disturbance of physiologic reactions of the blood and fluids in the tissues; of the menace of a too great concentration of drugs upon heart, brain, liver, kidney. As a general rule, slow intravenous administrations permit of compensatory adjustments which make for greater safety.

Meticulous care should be employed by the physician. The needle should be as small as is compatible with the nature and the quantity of agent to be administered. Care should be exercised not to allow fluid to escape into perivascular tissue. Calcium solutions have been known to produce serious slough and abscesses have followed poor administration of salvarsan and other drugs.

Angina Pectoris, Coronary Thrombosis and Breast Pang.

Much speculation as to the real factors at work in angina pectoris has been indulged in. That rather clear cut cardiac syndrome evinces itself by the outstanding symptom of pain. The nerve routes through which the pain-stimuli pass are yet in question. The factors that make or create the stimuli, in or about the heart, are likewise under discussion. Probably much light has been shed upon the subject by recent discussion. Professional opinion has not yet been able to reach a full conclusion. But the recognition of coronary thrombosis has done something to clear up a group of heart attacks that had not been altogether consistent with angina pectoris. Observation of a large number of cases of angina pectoris leads to the thought that the main

pathologic factors in these cases center around aortic valve-disease, aortic aneurysm, sclerosis of coronaries and myocardial degeneration; and often in association with general arteriosclerosis and cardiac hypertrophy. At once, it is quite safe to say, that so wide a range of factors may bring about, in symptomatology, a varied assortment of symptoms, in a large series of cases of angina. With this possibility in view, it is important to observe, also, that there are certain known disease entities, which simulate angina pectoris, but which are not cases of angina pectoris as we understand the disease today. There may be pain over the precordium and this may take on certain similitudes of angina pectoris. One of these conditions may be considered from the standpoint of pathology to be of the nature of that sort of pathology as is often found in angina pectoris, but which possibly failed to display angina pectoris symptoms during that phase of its evolution. Through some compensatory circumstances of function, hearts eventually, then, showing symptoms of definite and clear cut pain over the precordium and radiating down the arm or arms, with coronary thrombosis, may be easily taken for angina pectoris. But coronary thrombosis is not angina pectoris; and it must not be so taken. Angina pectoris cases may show no serious sclerotic or thrombotic changes in the coronary system of vessels. There are cases of angina pectoris, which have very little if any disease of coronaries, either at the openings or in the walls of the vessels themselves.

Likewise, precordial pain or pain upon the left side and radiating to shoulder or left arm may appear in patients with chronic or subacute pleurisy, particularly in tuberculosis patients. Such patients may fear angina, especially in obesity and overweight. The differentiation is made by inquiry in cardiac status and function. Pains resembling those of angina pectoris may occur in patients with neuritis, following focal infection or associated with hirsutis on left arm, pains may involve areas over the left chest, subjective of a possibility of angina pectoris, but a careful study of cardiac status and the etiologic factors, as well as the order and evolution of the pain syndrome, clears the diagnosis.

Pain probably leads all other symptoms of disease, in its urgency and bringing the patient to the physician. Pain brings the patient to the physician quickly—if the degree and in-

tensity of it is great enough. There are varieties of pain, however, which are harbingers of serious pathology, which do not possess intensity or severity. This lack of degree may be the reason why patients fail to seek advice of the physician and permit serious maladies to progress to the borderline of the incurable before medical advice is sought. Lack of knowledge as to the nature and significance of pain is probably the cause of this. Probably in no region of the body is a study of more importance than that of the breast. It is both important to practitioners and laity as well. Practitioners must be alive to its significance, keenly alive to its possible nature;—intimately in touch with its various manifestations. No adequate educational program can be instituted among the laymen until practitioners themselves, everywhere, have acquainted themselves with the facts involved. After that, symptoms arising over the precordium, now attributable to indigestion or "intercostal neuralgia" or pleural "stitch" or "neuritis" of the arms, or "rheumatism" of the chest, etc., will take upon a more accurate meaning and bring to light important adventitious states of the heart, in stages amenable to adjustment or cure.

To repeat, naggnig pain may be as serious as the severe pain in its importance. Pain, that brings the patient to the physician in limited and definite boundaries, is an advantage; while, pain that is lacking of severity and that may be relieved by some simple home procedure, may be kind to the sensibilities of the patient, but a menace to the patient's life. Breast pains are all significant and important. The public knows the popular idea of pain in the right quadrant of the abdomen and around the navel, but fails, as yet, to understand in any adequate sense the real importance of pains emanating in left upper quadrant of the thorax. If one has a pain in the right abdomen, popular opinion suggests appendicitis, and the opinion of the physician is sought on the possibilities of this malady. The same public appreciation of breast pangs should be attained by the laity, as, by this, early symptoms of serious cardiac cases may be recognized.

Ephedrin.

A Chinese herb called *ma huang* is the source of ephedrin. This active principle has been thoroughly investigated scientifically, both

from the pharmacologic and clinical sides. These may be briefly noted.*

EPHEDRIN AND BLOOD PRESSURE.—Intravenous injection in the circulation of the dog has a marked and prolonged increase in the blood pressure. In one instance 5 mg. caused an immediate rise of blood pressure from 75 to 200 m.m.

EPHEDRIN AND THE HEART. Coincident to increase of blood pressure there occurs in animals a definite cardiac acceleration. The pulse rate increased from 164 to 264 beats per minute in one animal. There was noted also definite augmentation in the strength of contractions and an increase in excursion of the heart. Over-dosage or repeated dosing exerted harmful effects. Extrasystoles and acute dilatation occurred.

EPHEDRIN AND BLOOD VESSELS. In addition to cardiac acceleration and increase of blood pressure, vasoconstriction was marked, particularly in splanchnic circulation.

EPHEDRIN AND SMOOTH MUSCLE. Smooth muscle relaxed only when ephedrin was given in relatively strong solutions as composed with adrenalin.

Chen and Schmidt observed that smooth muscle of the uterus was stimulated. The bronchus was relaxed.

EPHEDRIN AND SALIVARY FLOW. Chen and Schmidt reported that ephedrin increased the flow of saliva where atropine had been given.

LOCAL EFFECT OF EPHEDRIN ON MUSCULAR MEMBRANE. Ephedrin like adrenalin, when locally applied, relaxed smooth muscle of the intestines and caused vasoconstriction when applied to mucous membrane.

*Reference. Notes on Sulphate of Ephedrin. Rudolf and Graham (*Am. J. M. Sc.*, March, 1927.)

News Notes

Virginia State Board of Medical Examiners.

At the examinations of the Board in Richmond, the middle of June, all applicants for the full examination passed. Several others came up for part of the examination and some for admission to practice in Virginia by reciprocity. Names licensed at these examinations are as follows:

Dr. Edward Lee Alexander, Richmond, Va.
Dr. Rufus Carter Alley, Richmond, Va.
Dr. Geo. Basil Arnold, University, Va.
Dr. Eugene Anthony Bain, Petersburg, Va.
Dr. Wm. Linwood Ball, Richmond, Va.

Dr. Jas. Boulware, University Hospital, Charlottesville, Va.

Dr. Thos. S. Bowyer, Emory, Va.

Dr. Hendrick A. Bracey, Memorial Hospital, Richmond, Va.

Dr. Wm. Cralle Brann, Marine Hospital, Stapleton, New York.

Dr. Wm. Turbin Holland Brantley, Memorial Hospital, Richmond, Va.

Dr. Harvey Christian Brownley, Sheltering Arms Hospital, Richmond, Va.

Dr. Abram Buck, Norfolk, Va.

Dr. Jas. Melvin Campbell, Saltville, Va.

Dr. Garland N. Carter, Memorial Hospital, Richmond, Va.

Dr. Virgil Orion Choate, Martha Jefferson Hospital, Charlottesville, Va.

Dr. Edward Bentley Cox, Louisville, Ky.

Dr. Sanders Graham Davidson, Roanoke Hospital, Roanoke, Va.

Dr. Henry Charles Davis, Honaker, Va.

Dr. Albert Brown Dickey, Prescott, Arkansas.

Dr. Robert Lemon Eastman, Fredericktown, Ohio.

Dr. Wm. Clarence Eikner, University Hospital, Charlottesville, Va.

Dr. John Roland Ellison, Jr., Suffolk, Va.

Dr. Herman Stuart Fletcher, Richmond, Va.

Dr. Seth Gayle, Jr., Richmond, Va.

Dr. Antonio Gentile, University, Va.

Dr. John Russell Gill, Emporia, Va.

Dr. Louis Holmes Ginn, Jr., Berryville, Va.

Dr. Marshall P. Gordon, Jr., Richmond, Va.

Dr. Edward W. Gray, Richmond, Va.

Dr. Wm. Beecher Greene, Lawrenceville, Va.

Dr. Earl Joseph Haden, East Leake, Va.

Dr. John Richard Hamilton, Johnston-Willis Hospital, Richmond, Va.

Dr. Andrew DeJarnette Hart, Jr., North Garden, Va.

Dr. Leo Eugene Hayes, Richmond, Va.

Dr. Harry M. Hayter, Meadow View, Va., (reciprocity with National Board).

Dr. Wm. Carey Henderson, Hospital Division, Medical College of Va., Richmond.

Dr. Phillip James Hirshman, Brooklyn, N. Y.

Dr. Charles Roy Hoskins, Jr., Saluda, Va.

Dr. Walter O. House, Norfolk, Va.

Dr. Jos. Warren Hundley, Jr., Richmond, Va.

Dr. Arthur D. Hutton, Abingdon, Va.

Dr. Leo Lemmer Jacobs, Wollington, N. C.

Dr. Ewell Claude Jamison, Memorial Hospital, Richmond, Va.

Dr. Jeannette Morris Jarman, Memorial Hospital, Richmond, Va.

Dr. Elliott W. Johnston, Richmond, Va.
 Dr. Sidney F. Johnston, East Radford, Va.
 Dr. Jeremiah Robert Johnston, Memorial Hospital, Richmond, Va.
 Dr. Orvin C. Jones, Memorial Hospital, Richmond, Va.
 Dr. Oliver Lee Jones, Lewis-Gale Hospital, Roanoke, Va.
 Dr. John Wesley Jones, Portsmouth, Va.
 Dr. James Woodfin Keever, Memorial Hospital, Richmond, Va.
 Dr. Louis Selnik Leo, Norfolk, Va.
 Dr. Morris S. Libovitch, New York City.
 Dr. Henry S. Liebert, Richmond, Va.
 Dr. Ellis Dill Lineberry, Cliffview, Va.
 Dr. Athey R. Lutz, Orkney Springs, Va.
 Dr. Clabe W. Lynn, Petersburg Hospital, Petersburg, Va.
 Dr. Jos. T. Nuns McCastor, Richmond, Va.
 Dr. Chas. Beasley Martin, Concord Depot, Va.
 Dr. Geo. Ozen Martin, St. Lukes Hospital, Richmond, Va.
 Dr. Blake Walden Meador, Richmond, Va.
 Dr. Fred Ulmer Metcalf, Roanoke, Va.
 Dr. Azby A. Milburn, Richmond, Va.
 Dr. Kinloch Nelson, Richmond, Va.
 Dr. Chas. Logan Newland, Richmond, Va.
 Dr. Maury Claiborne Newton, Lewis-Gale Hospital, Roanoke, Va.
 Dr. John Wesley Parker, Jr., Winston-Salem, N. C.
 Dr. Jos. T. Peters, Richmond, Va.
 Dr. Edward N. Pleasants, Richmond, Va.
 Dr. Wm. J. Porter, Norfolk, Va.
 Dr. Paul Ellis Prillaman, Callaway, Va.
 Dr. Peter Booth Pulman, Fort Eustis, Va.
 Dr. Irwin Rifkin, Grace Hospital, Richmond, Va.
 Dr. Edward Boisseau Robertson, Danville, Va.
 Dr. Edmund Eugene Robinson, Memorial Hospital, Richmond, Va.
 Dr. Wm. Auburn Runkley, University, Va.
 Dr. Anderson T. Scott, Richmond, Va.
 Dr. Palmer Augustine Shelburne, Richmond, Va.
 Dr. Otis Nonross Shelton, University, Va.
 Dr. Harry McGregor Shipley, Richmond, Va.
 Dr. Geo. S. Silliman (reciprocity with New York).
 Dr. Walter Knapp Slack, University Hospital, Ann Arbor, Michigan.
 Dr. Willard P. Smith, Newport News, Va.
 Dr. Thos. Nathaniel Spessard, Richmond, Va.

Dr. Wm. Sylvester Stakes, Piedmont Sanatorium, Burkeville, Va.
 Dr. Malcolm S. Stinnett, Memorial Hospital, Richmond, Va.
 Dr. Geo. W. Surgent, University, Va.
 Dr. Julian Earl Trainum, Richmond, Va.
 Dr. Jas. Thomas Tucker, Memorial Hospital, Richmond, Va.
 Dr. Henry Cromwell Turner, University, Va.
 Dr. Judson Tompkins Vaughan, Ashland, Va.
 Dr. Felix Burwell Welton, Richmond, Va.
 Dr. Matthew James Walter White, Jr., Norfolk, Va.
 Dr. Adam Duncan Ferguson White, R. F. D. No. 5, Lynchburg, Va.
 Dr. John Cecil White, Memorial Hospital, Richmond, Va.
 Dr. Claiborne Barksdale White, University, Va.
 Dr. Alpheus Hartley Wood, Emporia, Va.
 Dr. Victor K. Young, Bloxom, Va.

Petersburg Meeting, Medical Society of Virginia.

Little more than two months remain before the annual meeting of our State Society in Petersburg. Preparations for the meeting are advancing and we have every prospect for an excellent and interesting meeting. Cards have just been mailed all members asking for titles for voluntary papers. These should be sent to the Society's office. Dr. Stewart Roberts, Atlanta, Ga., will present a paper on "The Rheumatic Heart," and Dr. Wilburt C. Davison, recently of Baltimore, but now Dean of the Medical Department of Duke University, one on "Empyema in Infants Under Two Years of Age." The president's third invited guest has not yet been announced.

Dr. J. S. Horsley, president, has recently appointed two committees—one to investigate matters concerning the training of midwives in Virginia, composed of Dr. H. D. Howe, chairman, and Drs. Greer Baughman, J. Bolling Jones, Wm. R. Martin, H. G. Middlekauff, L. A. Calkins, and Mary E. Brydon, and the other, a committee to investigate the problems concerning the laboratory technicians of the medical profession, composed of Dr. Charles Phillips, chairman, and Drs. W. E. Bray and R. D. Caldwell, and Mr. A. H. Straus, of the State Board of Health, as an associate member. Both of these committees have been considering their work and will be prepared to report at the Petersburg meeting.

It will be well to make hotel reservations

early. If not acquainted with Petersburg, chairman of the hotel committee, Dr. E. L. McGill, will attend to this for you. The ladies in your family are expected to come with you and arrangement has been made for their entertainment.

Mrs. E. J. Nixon, president of the local auxiliary, is chairman of the Ladies' Committee. The visiting ladies will be carried on a historical pilgrimage one day, which will include visits to Blandford Church, the Crater and Confederate Tunnels, and the Peter Jones old trading station, and this trip will be followed by a tea. A dance and supper will be given at the Country Club one evening.

The scientific sessions will be held at the Petersburg High School and ample arrangement will be made for the various meetings of the House of Delegates and other gatherings. Reserve October 18-20, inclusive, to attend your State Society sessions and boost this meeting to your friends.

The Wise County Medical Society

Met in Norton, Va., July 13th, as guests of the Norton Medical and Dental Society. The meeting was well attended and several interesting papers were presented. In addition, there was a good clinic at the Norton Hospital. Dr. W. C. Brice, Stonega, and Dr. R. S. Kyle, Big Stone Gap, were elected members. Dr. G. B. Setzler, Norton, is president, and Dr. C. B. Bowyer, Stonega, secretary-treasurer.

Vacation Time—Recreation Time.

The old adage, "All work and no play makes Jack a dull boy" should be borne in mind by doctors as well as others at this time, the vacation time of the year. You prescribe it for your patients. You are as human as they and should "take your own medicine." You may work hard over your recreation, sight-seeing, automobiling, golfing, fishing, gardening, and what not, but it is getting out of the ruts and tedium of every day grind—however interested you may be in them—that clears the brain and rests the muscles and nerves and sends us back in better trim to take up our daily duties.

Don't let your chance for a recreation and vacation slip. Take the "ounce of prevention" rather than the "pound of cure."

United States Chief Factor in International Trade In Prepared Medicines.

The U. S. Department of Commerce, Chemical Division, states that the United States is

the world's largest producer, consumer and exporter of prepared medicines. In 1925, the value of patent medicines and druggists' preparations manufactured in this country was nearly \$320,000,000. During the same period our exports of this class of commodity had a value of nearly \$20,000,000.

It is reported there is no country which the American drug salesman has not penetrated and the rapidly increasing volume of our export trade indicates that his efforts have been fruitful of results. The United States has only three competitors in the international trade in prepared medicines—the United Kingdom, France and Germany.

Fully fifty per cent of the British shipments of medicinals are destined for the Far East and Africa; seventy-five per cent of them go exclusively to British possessions. Canada buys one-half again as much prepared medicines from the United States as from Great Britain. We sell the British approximately six and a half times more of these commodities than we buy from them. French exports of medicines and pharmaceuticals are distributed throughout the world and enjoy no distinct advantage in any particular region. Germany supplies prepared medicines especially to contiguous countries.

The United States sends its prepared medicines largely to the countries of the Western Hemisphere. The five largest individual markets are Great Britain, Cuba, Mexico, Columbia and Canada. Fully eighty per cent of all our exports in this line are destined for about fifteen English and Spanish speaking countries.

It is stated that the European markets and Canada are more highly educated as to the use of preventive medicines than other areas and are our best markets for specifics. The Latin Americans consume large quantities of tonics. Efforts are being made, however, to educate the people in these areas in the use of preventive medicines and the same is true of the natives of Far Eastern countries.

Juvenile Delinquency Decreased in Great Britain.

In March, 1927, the British Departmental Committee on the Treatment of Young Offenders reported a decrease of 26 per cent since 1913 in the number of charges proved against boys and girls in the juvenile courts, and of 69 per cent in the number of children and young persons sent to institutions by

court order. In the past five years 40 certificated schools receiving such children were closed.

Dr. Albert C. Van Reenen,

Recently of Covington, Va., has moved to Mohawk, West Virginia.

Number of Drivers Color Blind.

According to the *Journal of the A. M. A.*, since the installation of the colored light traffic signs in Washington, it has been found that two per cent of the people applying for permits to drive in the District of Columbia are color blind and unable to distinguish the green from the red light. Such persons are refused permits to drive.

Dr. Sam Wilson

Has just returned to his home in Lynchburg, Va., after taking a special course in pediatrics at Harvard Post-Graduate Medical School.

Dr. Casper L. Woodbridge,

Who served as a medical missionary in China for several years, under the Southern Presbyterian Board, but was forced to return home several months ago on account of conditions in that country, has been visiting at Montreat, N. C. He expects to locate in Pulaski, Virginia, the latter part of August, for the practice of his profession. Dr. Woodbridge is an alumnus of Johns Hopkins Medical School, in the class of '21.

Dr. Charles F. Strosnider,

Goldsboro, N. C., has been elected president of the Chamber of Commerce of that city.

Dr. Courtney Edmond,

Clifton Forge, Va., recently underwent an operation for appendicitis.

Cuba Restricts Children's Attendance at Motion Picture Theaters.

A recent decree by the President of Cuba forbids the admission of children under 14 years of age to motion-picture theaters after 8:30 P. M., except on Sundays and holidays. Fines are imposed for violations of this decree, and the money collected will be used to purchase educational films for the public schools.

Dr. J. Belmont Woodson,

Lowesville, Va., has just been re-appointed by the Governor a member of the State diseased and crippled children's hospital board for a period of seven years.

The American Electrotherapeutic Association

Will hold its annual meeting at Hotel Pennsylvania, New York City, September 12-16, under the presidency of Dr. Curran Pope, of Louisville, Ky. Two days of this meeting will be devoted to clinical sessions at the physical therapy departments of New York hospitals. Dr. Richard Kovacs, 223 East 68th Street, New York City, is secretary. It is announced that all legally licensed physicians are invited to attend the sessions.

Dr. William P. Gilmer,

After several years as a medical missionary in Korea, is visiting his parents in Pulaski County, Virginia. Dr. Gilmer practiced for a time in Clifton Forge, Va., before entering the mission field.

Dr. A. L. Stratford, Jr.,

Richmond, sailed the last of July from New York, for a visit of some time in France, Germany and Spain.

Canada's Red Cross Seaport Nurseries.

At Quebec, Halifax, and St. John the Canadian Red Cross is maintaining seaport nurseries for immigrant mothers and children. During the past six years these nurseries have given aid to 85,000 women and children, and last year over 5,000 follow-up cards in 13 different languages were sent to the Red Cross chapters in the districts to which the families were going.

The Southwestern Virginia Medical Society

Has arranged for its next meeting to be held in Bristol, Va., September 22nd and 23rd. Dr. Z. V. Sherrill, Marion, is president, and Dr. E. G. Gill, Roanoke, secretary. In addition to voluntary papers, there will be a symposium on Pulmonary Tuberculosis, the papers in which will be read by Drs. E. E. Watson, Mt. Regis Sanatorium, Salem, and G. B. Lawson, J. F. Armentrout and S. S. Gale, of Roanoke. Invited guests at this meeting will be Drs. Carrington Williams, Richmond; Robert P. Kelly, Lynchburg, and Hunter Peak, Louisville, Ky.

Bright's Disease One Hundred Years Old.

The hundredth anniversary of the discovery of Bright's disease was celebrated with interesting exercises on July 8th, at Guy's Hospital in London, where Dr. Richard Bright, who gave his name to the disease, practiced from 1820 to 1843. Dr. W. S. Thayer, President-elect of the American Medical Association,

tion, was one of the principal speakers on this occasion.

Dr. John M. Bailey,

Recently of Lawrenceville, Va., announces his removal to Hopewell, Va.

Church Child-Caring Workers to Strive for Family Rehabilitation.

The 200 delegates to the Conference of Church Work for Dependent and Neglected Children, held in New York recently, passed a resolution urging increased effort to discover the resources and solve the problems of the families from which the children come, to the end that the family may be kept intact and its status as a unit improved whenever possible. The delegates came from 19 States and represented 12 of the larger Protestant denominations.

Exhibition of Work by the Blind.

Twenty organizations interested in the care of the blind and the prevention of blindness had an educational exhibition in New York City, the last of July, of work for and by the blind of New York State. It was the first exhibition of its kind and attracted a great deal of interest. The exhibition was assembled by the New York State Commission for the Blind.

Dr. Fred J. Kellam,

Of the class of '15, Medical College of Virginia, who has been located for several years at Ernest, Pa., has located at Indiana, Pa.

Montreal Not a Summer Resort this Year.

In view of the typhoid fever epidemic which has been prevailing in Montreal, Canada, health authorities throughout the States have been advising summer vacationists to keep away from Montreal this summer. This epidemic, which was traced to milk coming to one of the large dairy companies in that city, has resulted in about 5,000 cases of typhoid fever in the five months ending with July and in the neighborhood of 500 deaths.

Dr. J. Stewart Gilman,

Who has been practicing at Palmyra, Va., for several years, has moved to Richmond, Va., where he is associated in practice with Dr. B. H. Martin, at 5510 Grove Avenue.

The Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, Va., has just issued its annual report covering work done at the hospital in its first year. This hospital evidently filled a much needed place in the hospitals of the state, as there were 10,656 examinations and

treatments, with 459 operations during the year. There were two deaths in the hospital—one a man aged 78 and the other a child, aged 3 years. These figures do not include patients treated in the out-patient department of the hospital or operated upon elsewhere by members of the staff. It is a satisfaction to note that the majority of the papers published by the staff appeared in the MONTHLY.

Dr. William A. Shepherd

Has been appointed surgeon of the Richmond, Virginia, Fire Department, to succeed Dr. Charles V. Carrington, deceased.

Italy's Traveling Health Centers and Communal Clinics.

Italy's National Bureau of Maternity and Child Welfare has established four traveling health centers, each in charge of a physician, has organized obstetrical and pediatric clinics in 54 communes, and has co-operated with the Italian Union for Child Welfare in starting its first child-health center in Milan.

Dr. W. Edward Smith,

Farmville, Va., is spending several months in Boston, where he is taking post-graduate work in internal medicine at the Massachusetts General Hospital.

Will Remain at the University of Virginia.

Dr. Stephen H. Watts, at the request of President Alderman, has agreed to remain another year as Professor of Surgery and Gynecology in the University of Virginia, pending the selection of his successor.

Dr. Claude Moore,

Roanoke, Va., expects to sail on September the 10th, for a three months' trip abroad. He will visit a number of the more important medical centers and universities in Germany, Austria, Switzerland, England and Scotland. He expects to spend the greater portion of his time in Berlin and Vienna.

Dr. M. C. Sycle

Has resumed his practice in Richmond, after an absence from the city of several months. His offices are at 11 West Grace Street.

Married.

Dr. Ben Randolph, of Lowesville, Va., and Miss Rachel Warwick McNeil, of Lexington, Va., June 28.

Dr. Lawrence B. Kelleher, of the class of '26, Medical College of Virginia and last year an intern at St. Vincent's Hospital, Norfolk, Va., and Miss Martha Elizabeth Hewitt, of Norfolk, the latter part of July. They will live in Charlotte, N. C.

Dr. Lee S. Liggan,

Formerly of Richmond, after practicing for a while at Callao, Va., has located at Deep Creek, Va., which is on rural route 3, from Portsmouth, Va.

Sun Baths for Babies in France.

There is a day nursery in the Salpêtrière Hospital, Paris, for the babies of women workers, where sun baths are regularly given in fine weather. Delicate babies born in November and December are given ultra-violet baths during the winter.

Appointed Medical Examiners for Air Pilots.

Dr. Nelson Mercer and Dr. R. E. Mitchell, Richmond, have been appointed by assistant secretary of aeronautics, department of commerce, Washington, as medical examiners for all airplane pilots in the Richmond district, private and student, who wish to qualify under the regulations of this branch as transport, limited commercial and industrial pilots. These regulations and examinations are being put into effect throughout the country and, as soon as the Richmond airport is ready for service, all pilots operating out of the city will be required to be examined. Dr. Mitchell will have charge of the eye examinations, Dr. Mercer looking after the other examinations. It is the plan of the department of commerce to establish landing fields for airplanes every thirty miles and to place beacon lights every one hundred miles on each of the routes throughout the country.

Dr. Charles W. Putney,

After post-graduate study in Philadelphia, for some time, has returned to his former home in Staunton, Va.

Dr. Thomas M. Winn,

Recently of Hot Springs, Va., is taking post-graduate work for several months at the New York Polyclinic Hospital.

Dr. C. E. Foley,

Recently of Washington, D. C., has located at Front Royal, Va.

Appointments at Medical College of Virginia.

New appointments at the Medical College of Virginia, Richmond, include Dr. William B. Porter, professor of medicine; Dr. Sidney S. Negus, professor of chemistry; Dr. J. C. Forbes, assistant professor of chemistry; Dr. Lewis C. Pusch, associate in pathology, and J. G. Jantz, associate in anatomy. In addition

to these full-time members of the faculty, President Sanger has announced a number of important appointments and promotions on the visiting staff of the college.

The U. S. Civil Service Commission,

Washington, D. C., announces the following open competitive examinations, information with regard to which may be obtained from the Commission or the secretary of the board of U. S. Civil Service Examiners, at the post-office or custom house in any city:

Physiotherapy aide and physiotherapy pupil aide, applications to be on file at Washington not later than September 17;

Graduate nurse and graduate nurse (visiting duty), applications to be rated as received at Washington until December 30.

Dr. Charles R. Robins,

Richmond, has just returned from Rochester, Minn., where he attended the Mayo Clinic.

Dr. Thomas W. Murrell,

Of Richmond, had the misfortune to have his new home, in the suburbs of the city, damaged by fire and water, early this month.

New Medical Director at Medical College of Virginia Hospitals.

Dr. M. B. Jarman, since November 1, 1926, medical director of the Hospital Division of the Medical College of Virginia, resigned the first of August and, after a month's vacation, will locate at Hot Springs, Va., where he and his wife, formerly Dr. Jeannette Morris, will be resident physicians to the Springs.

Dr. William P. Thompson, who has spent much time since graduation at Memorial Hospital, succeeds Dr. Jarman as medical director, and Mr. J. R. McCauley, secretary-treasurer of the Medical College of Virginia, will remain in charge of the financial affairs of the hospitals.

The American College of Physical Therapy

Announces that its 1927 clinical congress and annual meeting will be held at Hotel Sherman, Chicago, October 31st to November 5th. Dr. A. R. Hollender, 30 North Michigan Avenue, Suite 820, Chicago, is chairman of the Convention Committee.

Dr. George G. Hankins,

Newport News, Va., was recently operated on for appendicitis. He was reported as doing well when we went to press.

Obituary

Dr. Robert Madison Slaughter,

Washington, D. C., treasurer of the Medical Society of Virginia from 1903 to 1910, and formerly a vice-president in this organization, died June 3rd, after having been in bad health for a year. He was a native of Madison County, Virginia, and seventy years of age. He studied medicine at the University of Virginia and the College of Physicians and Surgeons, of Baltimore, graduating from the last named school in 1879. For more than thirty years he was located at Theological Seminary, Va., later moving to Washington. He joined the Medical Society of Virginia in 1880, and was always most active in its work, having been made an honorary member for his services to the organization. He was recipient of the Hunter McGuire prize given at the 1890 meeting of the Society for the best essay on "Diagnosis, Pathology and Treatment of Chronic Cystitis in the Male." He was a member of the Medical Examining Board of Virginia from 1894 to 1910. Dr. Slaughter is survived by three daughters, his wife having preceded him to the grave by about seven weeks.

Dr. Charles Venable Carrington,

Of Richmond, died suddenly at his home in this city, July 22nd, death being due to heart disease. Dr. Carrington was born in Charlotte County, Virginia, July 29, 1866, and graduated in medicine at the University of Virginia in 1889. Shortly thereafter, he located in Richmond, where he had since made his home and was prominently identified with the professional and social life of the city. He became a member of the Medical Society of Virginia in 1890 and was at one time a counselor in this organization. He was also an ex-president of the Richmond Academy of Medicine and was for a number of years physician to the State Penitentiary, during which time he was responsible for many reforms in the living conditions and labor system there. He had been surgeon for the Richmond Fire Department for several years. He is survived by his wife, several children, two brothers and a sister.

Dr. Robert Pollard Stryker,

New Castle, Va., died at his home in that place on June 13, death being due to pneumonia. He was 38 years of age and a grad-

uate of the Medical College of Virginia in 1912. Dr. Stryker had been for several years a member of the Medical Society of Virginia.

Dr. Samplett Edgar Webb,

Member of the Medical Society of Virginia, committed suicide at his home in Draper, N. C., July 7. Complete mystery surrounds the deed, as Dr. Webb was apparently in good health and in the best of spirits. He was forty-nine years of age and had graduated in medicine from the University of North Carolina, School of Medicine, in 1908. His wife and young son survive him.

Dr. Lewis Allen Griffith,

Of Upper Marlboro, Md., died at his home in that place July 7, at the age of 72. He was graduated in medicine from the College of Physicians and Surgeons of Baltimore. Dr. Griffith was one of the most beloved citizens in his section and was a most active member of his county and state medical organizations. He was at one time member of the Maryland State Board of Health and for thirty years was a member of the State Board of Medical Examiners, his place being taken, when he resigned, by his son, Dr. W. Allen Griffith, of Berwyn. Besides this son, he is survived by his wife and a son, Dr. F. Webb Griffith, of Asheville, N. C. He was a brother of Dr. R. S. Griffith, of Basic City, Va.

Dr. Henry Mills Hurd,

First superintendent of Johns Hopkins Hospital and emeritus professor of psychiatry at Johns Hopkins University Medical School, died of pneumonia at his summer home in New Jersey, July 19. He was 84 years of age, and received his medical diploma from the University of Michigan Medical School in 1866.

Dr. Hanau Wolf Loeb,

St. Louis, Mo., editor of *Annals of Otology, Rhinology and Laryngology*, and secretary of the American Board of Otolaryngology, died July 6, at the age of 61 years. Death was due to heart disease. He was graduated in medicine from Ensworth Medical College, of St. Joseph, Mo.

Dr. Anthony B. Russell,

A native of Loudoun County, Va., and graduate of the University of Virginia in the class of '96, died at his home in East Orange, N. J., July 10, aged 55. He is survived by his wife and two sons, both students at the University of Virginia.

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SIR WILLIAM OSLER.*

By ALEX. F. ROBERTSON, Jr., M. D., Staunton, Va.

In making the subject of my address a biographical sketch, I feel that I am drawing from a field abundant with interest and teeming with inspiration. The history of medicine portrays numberless romances. When one pauses to think of the marvelous advances of the last century, and of the outstanding achievements of the leaders, he is lost in admiration, and thinks not of how well versed the modern physician is, but rather of how we of this generation may best deserve our priceless heritage. The doctor, with his all absorbing busy life, has the need of the background given by familiarity with the history of medicine—a subject, until recently, not included in the curriculum of any medical school. The announcement last year of a chair of medical history at Johns Hopkins, under Dr. W. H. Welch, is particularly pleasing, and should blaze the way for its general adoption. It is especially appropriate that this should have made its beginning in the medical school which owes its success so largely to Osler.

My father, a layman and a lover of biographies, who presented me with Dr. Harvey Cushing's life of Osler¹, remarked that Osler's life was one of the most remarkable and inspiring he had ever read, and that were he a young doctor, he should read it once each year. To those of you who have not read this life, I commend it most highly, not only for its historical interest, but also for the wonderful inspiration it contains. Even had I the ability, time does not permit me to do justice to my subject, and I must therefore describe very briefly the important phases in the life of a man claimed with equal fervor by three countries.

William Osler, the youngest of nine children, was born July 12, 1849, in the backwoods of Canada. Of Welsh descent, his par-

ents had come to Canada ten years before, as missionaries, and reared their children amidst the rigours of frontier life. As a boy, he was quite athletic, full of fun and pranks, which on more than one occasion, got him into trouble. At the age of sixteen he was sent to school at Weston, where he came under the influence of the Rev. W. A. Johnson, warden of the school. Johnson, in addition to being a philosopher, was a naturalist, and under his tutelage, Osler became intensely interested in botany. Dr. James Bovell, medical director at Weston, had a deep interest in biology, which Osler immediately took up, spending all of his spare time in expeditions in the fields and microscopic study. These two men had a lasting influence upon him, particularly Bovell, so that after a year at Trinity College, studying the arts, preparatory to entering the ministry, he decided to study medicine, and accordingly entered the Toronto Medical School in 1868.

At Toronto he entered into his work with great earnestness. He took the greatest interest in anatomy and spent many hours in the dissecting hall, often taking a sandwich and spending his lunch hour there. During his second year he discovered trichina in the muscles of a German cadaver. Although the condition had been described by Paget in 1835, very little was known of the disease in America at that time. Osler attributed his discovery to his interest in biology, which continued to occupy much of his spare time and holidays. This second year he had a room at Dr. Bovell's house and became interested in his library containing many choice books. During the summer of 1870 he decided to leave Toronto and spend his last two years at McGill in Montreal, where the hospitals offered greater clinical advantages to the students.

While a medical student, Osler started many of his life habits. One of these was to read good literature, not medical books, for half an hour each night after going to bed. Another was to read with note book and pencil in hand, so that he might jot down striking facts. In the course of his reading he adopted

*Presidential address delivered before the Medical Association of the Valley of Virginia, May 26, 1927, at Clifton Forge, Va.

1. The Life of Sir William Osler, by Harvey Cushing, M. D. Vols. I and II, Oxford, at the Clarendon Press, 1925.

for his own, Carlyle's thought, "Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand." At McGill, Osler was adopted by Dr. Palmer Howard, a splendid teacher and clinician, and a steadying influence on his development. When Osler graduated with high honors in 1872, he had firmly intrenched himself in the hearts of students and professors alike.

Post-graduate study abroad followed, and for the next seventeen months he was found in London working at histology and physiology, under Professor Burdon Sanderson and others of a most stimulating group. The esteem in which he was held at McGill is evidenced by the offer of the chair of botany at this time, when he was only twenty-three years of age. During this period he attended clinics given by such celebrities as Jenner, Wilson, Fox, and Ringer. In 1873 he discovered blood platelets, and, after reading a paper on the subject before the Royal Microscopical Society, was elected a member. In October, he went to Germany and spent three months in Berlin, where much of his time was occupied watching the careful autopsies of Virchow. We next find him in Vienna for five months attending various clinics. Returning to Canada early in '74, he was appointed Professor of the Institutes of Medicine at McGill, at the age of twenty-five.

Osler claimed for himself a single talent, a capacity for industry, and the amount of work that he was able to do is truly remarkable. As a teacher, he was first and last a pioneer. At McGill he departed from the stereotyped form of lectures and threw his heart and soul into making the courses attractive. He volunteered for work in the pathological laboratory, and began doing autopsies for visiting physicians and surgeons. These he did so well that after two years a new position of pathologist to the hospital was created for him. In the following year he made one hundred autopsies, all carefully worked up and described, and nearly a thousand before leaving. In the meantime, keeping up his interest in biology and comparative anatomy, he was appointed Professor of Physiology in the Veterinary College of Montreal in 1877. The following summer he spent in England in clinical study, the beginning of his "quin-quennial brain-dustings," which habit helped to keep him abreast of the times. While there he took examinations for admis-

sion into the Royal College of Physicians, of which he became a Fellow in 1883.

A few years after coming to Montreal he organized the McGill Medical Society for undergraduates, and later on organized a similar society at Johns Hopkins. One can well imagine the inspiration and help obtained by the medical students thereby, and the value of this experience in later life.

After ten years at McGill, Osler was called to the University of Pennsylvania as Professor of Clinical Medicine, at the age of thirty-five. He immediately plunged into work, rigged up a small clinical laboratory, and gave the students their first experience in real bed-side instruction. His arrival was described by a student as "a breath of fresh air." For his five years in Philadelphia he continued his pathological work by doing post-mortems at Blockley in the afternoons. At each place Osler went, he organized a journal club and encouraged the men to review foreign and rare medical literature.

In 1889 he accepted a call to Johns Hopkins Medical School, just completed, as Professor of Clinical Medicine, and there organized the clinic which gave post-graduate courses until 1893, when the undergraduate school was opened. In May and June of 1890, he was abroad inspecting the leading clinics of Germany and France. While at Hopkins he established a historical club and the Laennec Society for the study and prevention of tuberculosis. The clinic established by Osler, at Johns Hopkins was unique at that time, but has now been universally adopted. The experiment, as it was then called, of largely substituting practical work in the wards and dispensaries for didactic teaching in the junior and senior years was watched with interest and a certain amount of scorn by other schools.

Osler established a custom in Baltimore of having two of his clinical clerks to dinner each Saturday at seven o'clock and at eight o'clock the rest of the group for cheese and beer. An hour would be devoted to a discussion of their patients and the week's work, and then Osler would give a talk on one of his favorite authors and exhibit early editions of their works. By this means teacher and student learned to know one another intimately.

In 1905 he sailed for England to assume his new position as Regius Professor of Medicine at Oxford, which he occupied until his death

in 1919. There the teaching was optional to a large degree, but he started in with a group of fifteen juniors and put into practice his bedside teaching at the Radcliffe Infirmary. In addition to this each Sunday morning he gave a consulting clinic at the infirmary for the benefit of the countryside physicians. At Oxford, teaching was on a much smaller scale, and is well nigh lost sight of among his manifold other activities.

But aside from his teaching, many of his other qualities deserve special mention. As a clinician Osler was brilliant. His pathological work, and particularly the postmortems, laid the foundations for a wonderful knowledge of diagnosis. He never entered private practice, and did not encourage consultations. In fact, his time was so fully taken up with teaching and literary pursuits that he had little time for them. In Baltimore he had office hours from 2—4:30, but not until 1898 did he have many consultations. After this they became so incessant that they, probably more than anything else, influenced him to leave Johns Hopkins and go to Oxford. Before and during the greater part of the nineteenth century, drugs were used largely empirically, and in the greatest profusion. Osler was one of the first to realize that many acute diseases are self-limited and not influenced by drugs. He was considered a therapeutic nihilist, but the study of an early addition of his text-book shows his drug therapy a generation ahead of his time. He believed thoroughly in certain drugs, but only when they were clearly indicated. As a consultant, he was always most kind and fair to his fellow practitioner, and always ready to give his services to physicians and their families. Combined with his medical knowledge was a full understanding of human nature, a sunny disposition, and a rare sense of humor which made him an ideal physician.

Osler regarded attendance at medical meetings as one of his professional obligations, and was to be seen at all of the important meetings, reading papers and taking an active part in discussions. Shortly after his appointment to McGill, we find him revivifying the old Medico-Chirurgical Society which was practically moribund, and taking an active part in every meeting. He served as secretary and later as president of the Canadian Medical Association. He played a leading role in the Philadelphia Pathological Society, appearing

before it fifty-two times in four years. He was one of the founders of the Association of American Physicians, and also served as president. He put new life into the dormant Medical and Chirurgical Faculty of the State of Maryland, which he also served as president. In 1891 he was elected president of the American Pediatric Society. In England we find him president of the National Association for the Prevention of Consumption in 1910, and of the Medical Section of the International Medical Congress held in London in 1913.

As a writer, Osler's outstanding attainment is his text-book, *Principles and Practice of Medicine*, published in 1892 and revised by him eight times. Probably every member of our association has studied this book. I remember as a medical student I used to call it my Bible. To me it is nothing less than a miracle that any man could finish the manuscript of such a book in the incredibly short time of nine and a half months, and still keep up his other interests and activities. The beautiful English of this book, its clearness and its frank statement of the lack of scientific knowledge about many diseases, had far-reaching effects. In 1897 Mr. Gates, a member of Rockefeller's philanthropic staff, read the book from cover to cover, and was so impressed with the need for research work in medicine that he brought the matter to the attention of Mr. Rockefeller. Five years later this bore fruit when Rockefeller gave one million dollars to Harvard and established the Rockefeller Institute for Medical Research, after which Mr. Gates wrote to Osler, "Both of these gifts grew directly out of your book". By triennial revisions the book was kept up to date, and, translated into French, German, Spanish, and Chinese, it has probably enjoyed a wider circulation than any other medical book.

Osler's love of good literature helped make his style of writing remarkably good. Naturally clear and concise, his purity of English made all that he wrote real contributions to literature. Before writing his text-book, he had contributed sections to three different Systems of Medicine, to Wilson's Applied Therapeutics, to Dercum's Text-Book on Nervous Diseases, and to an Encyclopedia on Diseases of Children. In 1910, in collaboration with McCrae, he published his own System of Medicine in five volumes. While in America he became interested in medical biography, and many of his papers in England were biographi-

cal sketches. He was in great demand for such public occasions as the dedication of a new medical school or library, addresses to graduating classes, and endowment lectures on subjects ranging from Harvey to Immortality. While not an orator, his sincerity, earnestness, and the worth of what he had to say, always gained for him large audiences.

After his farewell address at Johns Hopkins he was severely and unjustly criticized by the press—especially the yellow journals. In this address he said that one of his obsessions was that the real creative work of the world was done by men between the ages of twenty-five and forty, and that men above sixty were useless and should retire. He then told of a plot in Anthony Trollope's "The Fixed Period", in which men at sixty were retired for a "year's contemplation before a peaceful departure by chloroform". He added that, while the benefits of this could be seen, he was a bit dubious about the chloroform, as he was himself approaching the limit—he was then fifty-five. The next day's headlines in the papers read, "Osler Recommends Chloroform at Sixty." Many of his friends tried to induce him to retract the statement, but he refused to make any reply.

In the spring of 1919 the Johns Hopkins Hospital Bulletin published a bibliography of Osler's writings—730.

Osler's interest in biographies and the classics has already been mentioned. Libraries were his hobby and the later years of his life find him devoting a great deal of time to his own splendid library, which he left to McGill. In every place he went, he became actively interested in the local medical library, and was untiring in his efforts to build it up by his personal work and by interesting others to help. As an example, in 1891 he was placed on the library committee of the Medical and Chirurgical Faculty of Maryland, and by 1905 the library had grown from a few hundred old books to 15,000 volumes, and necessitated two moves. At Oxford he took an active interest in the Bodleian Library of which he was a curator, and the library of the Royal Society of Medicine, and in 1913 we find him president of the Bibliographical Society. In both England and America Osler established Medical Librarian Associations in which he took the greatest interest and to which he was a constant source of inspiration. But for a full appreciation of this side of Osler we must

refer you to his biography and pass on to another phase, his personal influence and his influence on public opinion.

Osler was a personified Renaissance, and Cushing speaks of him often as an enzyme. His ability not only to do a prodigious amount of work himself, but also to make others emulate his example is well expressed by W. W. Keen, "Wherever he went the wheels began to go round, things began to be done, and all for the good of the profession and of the community. The dry bones, as in Ezekiel's vision, gathered themselves together and became imbued with active life. The diligent were encouraged to become more diligent, the slothful were shamed into activity. He was a fount of inspiration. His personal influence extended more widely and to better purpose than that of almost any one I have ever known." A glance at Osler's bibliography will show his interest in public health and in the burning questions of the moment. On the occasion of his first appearance before the Medical and Chirurgical Faculty of Maryland just after his call to Johns Hopkins, instead of complimenting them, he fearlessly criticized the prevailing systems and standards of medical education, and gave a prophetic outline of the new ideals to be attained. During his American period he was constantly awakening the national conscience to the necessity of instituting proper hygiene and sanitation for the eradication of Typhoid Fever and Tuberculosis. As Cushing says of him, "His time, his pen, and his great personal influence had almost as much to do with the modern sanitary improvements which Baltimore has come to enjoy as Virchow's influence had to do with those instituted during the 80s in Berlin. But his vigorous early participation in what has become a world-wide campaign against tuberculosis must stand in the forefront of the many public services he rendered—services which in large measure have been lost sight of in the maze of his other activities". These accomplishments aroused the interest of Mr. Phipps, a philanthropist, who made several large donations for Tuberculosis work at Johns Hopkins as well as in England. After his Oxford transplantation he carried the anti-tuberculosis fight to England and was there the leading figure in the crusade.

Both in America and England he took an active part in the fight against the obnoxious anti-vivisection legislation. Upon his arrival

in England, the Oxford Press published very few medical books, while today, it ranks well with any of the medical publishers of England or America. This is due largely to Osler's help and his international influence in the medical world. He was largely instrumental in bringing about the amalgamation of seventeen out of twenty rival London medical societies, and organized the Association of Physicians of Great Britain and Ireland.

Before the World War he is found appealing for reform of the English system of teaching and examinations, and this was made the subject of many of his talks. During the war, an honorary colonel, he took a most active part as consultant at various hospitals and acted as a go-between with the War Department. All troubles were brought to him, and so successful was he in smoothing them over that he was dubbed Consoler General of the British Army. The anti-vaccinationists were so strong in England in 1914 that compulsory vaccination was not adopted in the army, and Osler spent much of his time addressing recruits and urging them to volunteer for vaccination again typhoid. He also wrote a number of articles to the papers on this subject. Throughout the war he exerted a calming influence by his cheerfulness, devotion to duty, and uncomplaining sacrifice of time, money, and his only son.

That Osler was esteemed for his scientific worth is attested by the fact that he had offers from six universities,—McGill and the University of Toronto offering him the presidency; that he was given honorary degrees by a score of the leading Universities of Canada, America and England; that he was one of six doctors who have ever held the presidency of the British Association for the Advancement of Science; and that he was given a baronetcy in 1911. An idea of the love and appreciation of his colleagues may be seen in the five hundred physicians present at a farewell dinner given to him in New York in 1904, and in the thousands of messages—cables, wires and letters—which he received when he was given his baronetcy, when his son, Revere, was killed in France, and when he celebrated his seventieth birthday.

Finally the estimation of Osler as a man brings us to the most lovable part of his character. Many of his traits such as his industry, his activating influence upon others, and his sense of humor, have been mentioned. One of

his characteristics was getting up complimentary dinners for people on suitable anniversaries, and of suggesting a portrait—always accompanying his suggestion with a donation. His generosity was marked; in fact, he was an easy prey for beggars, whom he never refused to help. He gave freely to libraries and other causes, and after the Baltimore fire in 1904, before Rockefeller had come to the rescue of Johns Hopkins, he offered to give his salary of \$5,000.00 a year for ten years to keep up hospital publications.

In Baltimore and Oxford the Oslers kept open house. There was a continuous stream of guests and every one was made to feel at home. As No. 1 West Franklin St. was headquarters for Canadians and other visitors to Baltimore, so was the Oxford home, "Open Arms" as it was appropriately called, the magnet which drew all Americans. During the war the "Open Arms" was a veritable rest haven for soldiers and a meeting place for Rhodes scholars.

Osler's devotion to his family, to old people, and to children was most attractive. His visits to homes were often only an excuse for a romp in the nursery, which he always visited first. With children he was a great favorite, entering into the spirit of their play and inventing the most fascinating games. His married life was unusually happy. While in Baltimore he married the widow of Dr. S. W. Gross, a great grand-daughter of Paul Revere. Their only child, Edward Revere, was the idol of his father's heart, and his death in the World War, in August, 1917, was a blow from which Osler never recovered, though outwardly he gave no sign of his mortal sorrow, but engaged in his numerous activities with his usual cheerfulness and interest.

Osler was all his life subject to bronchitis and bronchopneumonia, but in sickness he was cheerful, considerate, and made light of his maladies—characteristics regrettably absent in most of us. His time in bed was devoted to the classics, early medical works, and correspondence. When stricken with his final attack of bronchopneumonia, September 28, 1919, he realized it was the end. It is comforting to know that one who had so often come from the bedside of a dear friend "whistling that he might not weep" should write thus toward the end: "The experience has been encouraging—discomfort of course, but no actual pain, and, except for the worry about leaving dear ones,

singularly free from mental distress". In the afternoon of December 29th he died quietly and without pain.

One of his students wrote, "Wherever Osler went, the charm of his personality brought men together; for the good in all men he saw, and as friends of Osler, all men met in peace". To my mind his life expresses the true symbol of the spirit of medicine. My hope is that this spirit may always bring us together in peace, dropping our petty jealousies, composing our disputes and differences, co-operating and ever dealing fairly with one another, and, above all, remembering that in the honorable profession in which we are enrolled, the world passes judgment, not on what the Oslers of our calling accomplish, but on the every day life of each one of us.

BLOOD PRESSURE WITH SPECIAL REFERENCE TO ESSENTIAL HYPERTENSION.*

By NICHOLAS G. WILSON, M. D., Norfolk, Va.

In order to understand the abnormal, we must first know the normal; and because, as applied to blood pressure, we are not agreed on either of these qualities, efforts to clarify the subject have not been very successful.

When we recall that the sphygmomanometer has been in general use not longer than twenty-five years, and that prior to that time our estimates of arterial tension were necessarily based upon the feel of the pulse and sounds of the heart, it is obvious that what knowledge of the condition we have has been fairly recently acquired. Even so, but few years have elapsed since a large proportion of our profession accepted the dictum that one's normal pressure should be equal to his age plus a hundred.

We are accustomed to think of the arterial system as consisting of elastic tubes, the smaller of which contain sufficient circularly placed unstriated muscle fibers to decrease or increase their calibre, depending upon the impulse reaching the muscle through its innervation by the sympathetic system, but inactive unless thus specially excited. Blood flow through the capillaries is supposed to be kept up by the systolic impulse from the ventricle, aided by the elastic squeeze of the arterial wall. Not long since, Russel, an English author, wrote:

"In considering the movements of arteries, it is to be noted that they have a pulsatile movement, probably a rhythmical response to the flow of the blood, corresponding with ventricular systole and diastole. It is probably not merely the stretching and contraction of an elastic tube by a wave passing along its contained fluid, but the same kind of unceasing, rhythmic movement the heart possesses." Nor does this property cease with termination of the arterioles. Christian says that in the frog's kidney, the glomerulus may be seen to rhythmically expand, flush, and then contract until almost invisible. Hinselman and other observers have noted that in the acute toxæmias of pregnancy, there is intermittent spasmodic contraction of the capillaries at the base of the nail. If this conception of the arterio-capillary system as an active pulsatile organ may be accepted, we can more easily comprehend the extensive variations in blood pressure occurring in nervously unstable but otherwise normal individuals, on account of psychic or reflex influences. In examining individuals of this type, especially if, by prolonged or repeated auscultation of the heart, attention has been directed to that organ, it is common to find systolic pressures of 160 to 170. If the examiner is diplomatic, the psychic element is easily removed and the pressure rapidly returns to its normal level. This type of transient elevated pressure is invariably accompanied by a corresponding rise in pulse rate, and the coincidence of the two phenomena—rapid pulse and elevated pressure—should make us consider psychic influence as a causative factor. The opposite of this condition is that of reflex or psychic shock with active dilatation of the arterio-capillary system, especially in the splanchnic area,—slow, weak pulse, and fainting, or other result of circulatory failure. That both of these conditions may occur under differing circumstances in the same individual serves to show how extremely sensitive to its nerve control is the arterial tree and it is not surprising that arterial tension should be influenced by a large number of abnormal bodily conditions.

Normal blood pressure is an individual characteristic. One may begin adult life with a systolic pressure of 90 and another of 120, and insofar as our present knowledge goes, both are normal. However, if the pressure of the former reaches that of the latter, or vice versa we know that something is wrong! Our idea

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concerning low and high normal limits of blood pressure have changed materially within a decade. Writers of ten to fifteen years ago regarded minimal systolic pressure as from 90 to 100 in women, and from 100 to 115 in men as distinctly abnormal, and many were the remedies used in an effort to raise them to normal. Fortunately, with the exception of disturbance of the patient's mental equilibrium, no harm resulted from these efforts.

When one observes women with pressures not exceeding 90 to 100, without faltering, or any evidence of physical or mental incapacity, undergo the stress of pregnancy and childbirth, not once only, but several times,—or men with pressures of 100 to 115, carrying on in business, successfully matching wit, sagacity and endurance with supposedly more fortunate men who have higher pressures and therefore more stamina, one is loath to regard their low pressures as being abnormal.

Turning to the question of maximal normal pressures, we find that moderate increases that used to be considered negligible are today looked upon with grave suspicion. In his monograph, Nicholson states that before middle life a pressure of 145, and after that period, of 160, needs explanation. W. C. Alvarez states that in 22 per cent of healthy college men he found pressures of 140 or over. In the light of present day knowledge we cannot help feeling that Nicholson's danger line is too high, and that Alvarez was dealing either with psychic pressures or else with men who had followed athletics from high school up, and who really had athletic hearts. In a pamphlet, entitled, "The Diagnostic Value of the Sphygmomanometer in Examinations for Life Insurance", issued in 1922 by The Northwestern Mutual Life Insurance Company, it is stated that analysis of blood pressure readings on 65,000 men between the ages of sixteen and sixty, insured during the period between 1915 and 1920, led them to adopt normal average pressures varying between 117/75 at sixteen and 132/85 at sixty. A very moderate increase in these arbitrarily adopted figures is considered by them as sufficient cause for rejection of the applicant, and while their maximal limit seems very conservative, we must recall that it is actually based upon their mortality experience, which after all is the criterion by which the condition should be judged. In 525 individuals rejected solely because of systolic pressures 10 to 14 m.m. above the aver-

age, the mortality (their normal expectancy being represented by 100) was 136.1. In 1685 with pressures 15 to 24 m.m. above average, the mortality was 183.8, while in 909 whose pressures were 25 to 34 above average, the mortality was 204.4. Contrast these figures with those of a series of 3,389 with pressures of 100 or less, where the mortality was 35. It is to be noted that there were no women in these groups. Analysis of this experience, which is common to most of the old line insurance companies, would seem to indicate that the individual with a systolic pressure 10 to 15 m.m. below the general average has about four times the chance of longevity as the one whose pressure is 10 to 15 m.m. above it.

Intelligent interpretation of the significance of any blood pressure reading depends upon knowledge of previous readings in the same individual. This is especially important in obstetric practice. J. C. Hirst states that the average systolic pressure in women of child bearing age is 112, and the average in these same women when pregnant is 118. It is obvious that in a woman whose non-pregnant pressure is 90, a rise to 118 may have a serious significance; whereas in another woman whose non-pregnant pressure is 120, a rise to 125 or 130 may mean nothing.

In beginning consideration of essential hypertension we must admit that the name is a confession of ignorance. Its causes are unknown and are still being diligently sought after. VonMonakow says, "High blood pressure is a symptom which, similar to fever, has no uniform etiology." It is so insidious in its development that, as a rule, when the diagnosis is finally made, one may elicit a history of warning symptoms, occurring over a period of a number of years, yet not sufficiently obvious to induce the patient to seek advice. After full development the picture is so obscured by complicating conditions that the original cause cannot be determined. The designation essential is restricted to those cases of hypertension in which this condition seems to be primary. While, as before stated, the cause is unknown, there is agreement among many observers that in this disease the evidence accumulated points to two dominant factors: first, a predisposition to the disease, due either to a vice of constitution or to some hitherto undiscovered organic discrepancy, and, second, to the presence in the blood of some pressor substance, acting either on the vaso-

constrictor center or directly on the arterio-capillary system.

The search for such a substance or substances has focused attention upon those resulting from breaking up of the protein molecule, especially guanin and its oxidation product, guanidin. Guanin is set free in the tissues by the action of special enzymes on nucleic acid, after which by de-aminization it is converted into xanthin. This, in turn, is converted into uric acid by an oxidase found only in the liver. Both guanin and guanidin are found in varying amounts in the intestinal tract. A small proportion of these substances is taken into the stomach preformed in meats, but the greater part is the result of proteolytic action. Absorption of them depends upon the amount and the presence or absence of intestinal stasis. From an empirical standpoint, eating too much animal protein and constipation have by many been considered probable factors in the causation of hypertension, and it is interesting to know that science seems about to prove the correctness of their theory.

In May, 1924, R. H. Major, in *The Bulletin of Johns Hopkins Hospital*, published the results of his first experiments with methylguanidin, a normal constituent of the urine, as a pressor substance. They were spectacular. In dogs, intravenous injections of 1/10 gramme per kilo of body weight caused in one minute a sharp rise in pressure, followed by a more gradual rise to a maximum in from ten to twenty minutes. At the end of thirty minutes, repetition of the dose induced a second rise to 210 m.m. or more. In one dog it rose to 240 m.m. and was sustained at that point, without further injections, for four hours. Several animals showed convulsive twitching of the legs and face. Subsequently, similar experiments on human beings gave almost identical results. However in no instance was more than one injection given, the dosage varying between 45 and 80 m.g. per kilo. Following the injection, the heart beat was invariably slower and stronger, and the apical impulse more forcible. In dogs, the result of cutting the vagi indicated that the hypertension was probably caused by a powerful vaso-constrictor effect.

On July 31, 1926, in the *Journal of the American Medical Association* Dr. Major reported that further study of the urine in certain cases of hypertension showed diminished output of guanidin compounds, when compared with normal controls, and that in two patients

with marked elevation of blood pressure he found great increase in excretion of these compounds coincident with a fall in pressure. Later he has reported the continuance of his work along these lines, always with complete corroboration of the results of his earlier work.

Unfortunately, as yet no simple or accurate clinical method has been devised for estimating the blood content of these substances. Incidentally, Major has likewise shown that the pressor effect of methylguanidin is almost specifically neutralized by the anti-pressor substance present in the liver, and that in an animal with a normal pressure a dose fifteen to twenty-five times that required to lower to normal the elevation due to methylguanidin is *not* followed by a fall in pressure. When we recall that guanidin is ultimately converted into uric acid by a substance found only in the liver, we may be pardoned for entertaining a suspicion that this great organ, that for centuries has borne the burden of the doctor's ignorance, may hold the key to the riddle of essential hypertension.

If it be true that this disease, or symptom complex, is due to pressor substances in the blood, we should expect to find, preceding its development:

First—the entry into the system from the intestine of increased amounts of split protein products, as induced by eating too much meat, and by constipation.

Second—incomplete functioning of the liver by reason of damage, from whatever source, of its parenchymal cells, and,

Third—incomplete functioning of the kidneys, whereby elimination is interfered with.

A careful study of the literature pertaining to essential hypertension discloses the fact that while so little is known of its actual causes, many conditions, which may roughly be classified in one or the other of these divisions, have preceded it.

Thus, the harassed business man, whose worries have induced a psychic hypertension, is too busy to go home to lunch and a short period of relaxation, is constipated, and eats too much protein. Add to this picture an infectious focus, or some dormant sequel of an acute infectious disease of early life, and what more effective combination can be conceived?

Again, the toxæmias of pregnancy, whether of the so-called renal or eclamptic type, frequently precede the development of hyperten-

sion. Many observers have stated that this is exceptional, but the writer is convinced that if these cases are followed, not for five or six months, but for many years, it will be found that few escape the condition. From clinical observation the writer also is convinced that eclampsia is virtually never purely renal or purely hepatic, but an involvement of both systems, the one or other preponderating.

Johnson and Adams, of the Mayo Clinic, report the case of a woman, age thirty-four, whose only pregnancy, eight years before, was terminated in the eighth month because of a typical eclamptic toxæmia. After delivery all signs and symptoms of toxæmia rapidly disappeared and six months later she was considered absolutely well. She remained so, apparently, for four years, and then, after nursing her husband through a prolonged illness, was found to have hypertension of the essential type. During three years under their observation her pressure averaged 215/100.

Edgar states that 75 per cent of eclamptics recover completely, the urine subsequently showing no abnormalities. Unfortunately for this statement, in the vast majority of cases of hypertensive disease, it is only in the later stages that the urine shows anything of consequence.

In the *Journal of the American Medical Association* for February 12, 1926, Corwin and Herrick, of New York, analyze the study of 165 cases of hypertensive toxæmia of pregnancy, with relation to chronic cardiovascular disease. None of these patients had eclampsia, or any but very slight albuminuria. They consider as hypertension any pressure over 140. After a follow-up period of from six months to six years post partum, 74 per cent showed some degree of cardiac hypertrophy, retinal changes, brachial and radial sclerosis or hypertension. Thirty-seven per cent showed persistent hypertension. Of fifty-two cases observed in one or more pregnancies, subsequent to the one first attended by toxæmia of this type, fifty showed hypertension in the subsequent pregnancy. They state that patients manifesting this type of disturbance should be observed over a series of years for evidence of cardiovascular disease. One case from the writer's records may be cited in corroboration of these findings. In September, 1917, Mrs. B., age twenty-six, when five months pregnant, came under observation. She had two children, aged five and three years, and had some edema of

the feet and legs in the last month of both pregnancies. Her physician told her he feared convulsions during her first labor. She had appeared entirely well in the interval that preceded her third pregnancy. Her blood pressure was 130/80 and her urine was quantitatively and qualitatively normal. As a precautionary measure, a low salt and protein diet was prescribed. In spite of this precaution, by the beginning of the ninth month her pressure had risen to 180/100, with a trace of albumen and a few hyaline casts in an otherwise normal urine. Two weeks later it seemed wise to induce labor, which was done. Evidences of toxæmia rapidly subsided, the urine became normal, and seven weeks post partum she seemed entirely well, with a blood pressure of 125/70. She continued so for a year, at the end of which time she removed to another state. In August, 1926, during a visit to Norfolk, examination disclosed no other abnormality than a blood pressure reading of 150/90.

So strongly does evidence indicate the danger of pregnancy toxæmias subsequently resulting in hypertensive disease, that for a number of years, it has been the writer's practice to induce labor, regardless of the period of the pregnancy, when the systolic pressure has gradually risen to 170 or 180, and is not favorably influenced by treatment. An exception to this rule occurs when, for some good reason, it is especially desirable to deliver a viable child, but those interested should be plainly told of the grave risk incurred by delay.

Hypertension usually accompanies acute nephritis and frequently the mild subacute involvements following most of the acute infectious diseases in children. As a rule, on subsidence of the renal condition, the pressure returns to normal, but occasionally after a period of months or years has elapsed, hypertension will be found, and the urine will be normal. These are classified as being of the essential variety, and develop as such, but there can be but little doubt that there is in them some renal damage, too slight to be detected by the usual methods of investigation, and showing no nitrogen retention in the blood.

It is possible that this occult renal deficiency and a similar liver damage, curtailing that organ's detoxicating powers, may be potent factors in the causation of hypertensive disease. Further development of blood chemistry may

be expected to throw light upon this obscure condition.

In recent years, a great deal has been written about hypertension occurring at the period of the menopause. It must not be forgotten that at this time the sympathetic nervous system is extremely unstable. The writer cannot recall having observed a woman with this condition in whom the pressure subsequently returned to, or even near, normal, indicating the probability that hypertension existed prior to the menopause. Christian says that the endocrine glands have no bearing on essential hypertension.

A cause of this disease, that science will some day throw light upon, is the familial tendency to its occurrence. When asked for an explanation of it, Sir Wm. Osler said he did not know any cause, unless it was because a poor quality of tubing was used in making up these individuals. In this connection let me cite the record of a family under my observation during the past thirty years. While they present several types of cardiovascular renal disease, they are of sufficient interest to report without apologies for the digression.

Father (B. J.) died, age forty-five, of apoplexy. Mother (E. J.) died, age sixty-eight, of cardio-renal disease. Of the six daughters: Mrs. B. died, age twenty-four, of eclampsia. Mrs. L. died, age twenty-seven, of eclampsia. Mrs. T. L. died, age forty-one of eclampsia. Mrs. F. died, age thirty-nine, of cardio-renal disease, having had eclampsia with three pregnancies. Mrs. W., age forty-seven, has had four children, and is alive and well. Mrs. R., a widow, age thirty-six, has one child, age sixteen. Pregnancy and labor were normal except that she had slight edema of the feet in the last month of pregnancy. She now has marked cardiovascular disease with a constant pressure of 170/100. Of the three sons: D. died, age forty-five, of apoplexy. J. died, age forty-two, of apoplexy, while W. D., age thirty-nine is alive and well.

Among the many causes of hypertension may be mentioned over-exertion, as of athletes and laborers. This is mechanical in its operation, and is most serious in the presence of arteriosclerosis and infection.

Essential hypertension is usually described as existing in two types, benign and malignant, and the benign type is subdivided into the mild and severe form. A few cases are distinctly typical, but the great majority of them par-

take of the characteristics of more than one group. From a study of the disease, one must conclude that the cause usually is operative over an indefinite period of months, or, more probably, years, without attracting attention. Very rarely do we have the opportunity of watching its development. As a rule, when discovered it is fully developed, and a history of various types of headache, indigestion, and mild palpitation may, by careful questioning, be elicited. In the mild benign type there may, or may not, be found differing degrees of cardiac hypertrophy, and very little evidence of arteriosclerosis. Usually the urine and blood chemistry are virtually, if not entirely normal. Individuals in this condition who will recognize and live according to their limitations may live to reach, or exceed, the allotted age of mankind. As an example let me cite the case of Mrs. S., age fifty-seven, who, prior to the birth of her fourth child, in 1903, had mild hypertensive toxæmia. In July, 1905, my record states that she had hypertension, a slight degree of cardiac hypertrophy, the apex beat being just inside the mid-clavicular line, and a normal urine, except for the presence of a trace of albumen. She was instructed as to the general rules that should govern her life, particularly the reduction of her weight, which was considerably above normal. She was not again seen professionally until January, 1915, ten years later, when she came, not for herself, but to bring her son for examination. She stated that she was continuing to live according to my instructions, had not even felt sick since my last previous examination, and had no palpitation, dyspnoea, headache or edema. Her urine was normal and her blood pressure 260/-130. One year later her pressure was 230/120. My last observation was made on February 7, 1927, when she again stated she was entirely well, did all her housework and used glasses only when doing fine sewing. Her apex beat was still in the mid-clavicular line, the impulse was normal, and blood pressure 210/110. Her eye grounds were normal. Her radial, brachial, and temporal arteries were soft.

The severe benign type is usually accompanied by the symptoms incident to what we designate as cardiovascular disease. Generalized arterial sclerosis with retinal changes, cerebral symptoms, and varying degrees of cardiac hypertrophy are manifest fairly early. Retinal hemorrhages, disturbances of the cerebral circulation, with transient aphasia,

mono- or hemiplegia, hemianopsia, and angina pectoris give evidence of these arterial changes.

Sooner or later evidences of decompensation appear, and, in a small percentage of cases, renal involvement that closely simulates, or is identical with, chronic interstitial nephritis. Cardiac dilatation, with decompensation, occurring in the course of hypertensive disease, does not appear to be largely a question of physics. Hypertension may exist over a long period of years, giving rise to moderate hypertrophy, but without decompensation. An example of this was cited above in the case of Mrs. S., whose hypertension had been present for twenty-four years without causing even discomfort. On the other hand, the coincidence of hypertension, arteriosclerosis, and the myocardial involvement which so frequently accompanies or follows infectious diseases, such as rheumatic and typhoid fevers, syphilis, influenza, or even the lowly acute infectious tonsillitis, is prone to result in early decompensation. In the opinion of the writer, an arterial system already in a condition of hypertension is far more vulnerable to infectious processes than is one in a state of normal tension. This opinion is based on the uniform occurrence of arterial sclerosis in all cases of hypertension, with the possible exception of the mild benign type, and the recession of the processes, frequently observed to follow removal of infectious foci.

It is remarkable how long, even after full development of the severe type of benign hypertension, the individual may continue his usual activities in comparative comfort. An example may be cited in the case of Mr. L. who, when thirty-nine years of age, in 1911, consulted me because of dimness of vision in his right eye. His weight was 290, his blood pressure 200/110, his heart hypertrophied, the apex beat being outside the nipple line, and his urine normal. The oculist to whom he was referred reported a retinal hemorrhage, the arteries in both grounds being like corkscrews. Though he could never be induced to change his habits in any way, he continued his work, which was arduous, until cerebral hemorrhage occurred in 1925, fourteen years later. Decompensation began in 1916, four years after my first observation, and he was kept digitalized until his death. During his last four

years, his pressure varied between 260/140 and 290/160.

In 1924, Wagner and Keith, of Rochester, reported a study of thirteen cases, which they designated malignant hypertension. These patients were referred to their service with the diagnosis of acute glomerular nephritis. Their ages varied between twenty-four and thirty-nine, and the duration of noticeable symptoms, from a few months to three years. They were found to have diffuse vascular disease without renal involvement, and were accompanied by weakness, loss of weight, cerebral symptoms, and accidents, continued high blood pressure and very severe neuro-retinitis. In age incidence, history, and clinical and laboratory findings they conformed to the usual description of severe essential hypertension. The outstanding feature of them all was the severe hemorrhagic and exudative neuro-retinitis, accompanied by marked retinal arteriosclerosis. The determining factor in the production of the neuro-retinitis is not known, and, once established, it is but little influenced by treatment. If the patient survives long enough, the retinitis may subside, the effect on vision depending upon the amount of retinal and optic atrophy. One patient in this group died while under observation, and at autopsy there were found bilateral cerebral hemorrhage, moderate cardiac hypertrophy, and marked generalized arteriosclerosis.

Johnson and Adams report the occurrence of malignant hypertension in a girl of fifteen, in whom the findings were virtually identical with those described by Wagner and Keith.

A characteristic feature of all the reported cases of this type of the disease found in the literature has been the generalized arteriosclerosis with fixation of blood pressure. By "fixation" is meant that the pressure is very slightly, if at all, affected by the application of the usual means for its control, such as rest, nitrites, sedatives, hot baths or liver extract. When it occurs, it indicates arteriosclerosis, involving the splanchnic area. As a rule, it is a late occurrence in the benign type of hypertension, and the time of its appearance may be used as an index to the severity of the disease. In the malignant type it appears early.

Hirschfelder says: "An increase in blood pressure is indeed the rule in arteriosclerosis, although, as Hasenfeld has pointed out, it occurs only in persons whose sclerosis involves

the splanchnic arteries. Neither increase in blood pressure nor hypertrophy of the heart necessarily occurs in patients where these vessels are not involved". Bishop says that in arteriosclerosis, hypertension does not occur without involvement "below the diaphragm".

In an article describing the effect of liver extract on hypertension, Major cites the case of a man whose pressure did not respond to the extract, and who died while under observation. Autopsy disclosed intense arteriosclerosis of the splanchnic vessels.

While a consideration of essential hypertension is not supposed to include either arteriosclerosis or nephritis, clinically, it is almost impossible to avoid some mention of them. These two conditions with cardiac hypertrophy are the usual terminal results of the disease and their pathology is its only known pathology.

Christian says, "Very probably, these three conditions are often mingled in the same patient, and it is not possible, from autopsy evidence, to reconstruct the type, sequence, and progression of lesions".

Johnson and Adams, of Rochester, so frequently quoted in this paper, make use of the following routine in determining the type of hypertension:

First—The patient is kept in bed, as quiet and tranquil as possible, for three days.

Second—Sodium nitrite, gr. $\frac{1}{2}$, is given every hour for six doses.

Third—Luminal, gr. $\frac{1}{2}$, is given every hour for six doses.

Fourth—A bath at a temperature of 100° to 105° for fifteen minutes is given.

Each of these tests is given on different days, and each day frequent blood pressure readings are taken as an index to the response to each test. Eye ground and cardiac changes also are taken into account.

Fluctuation of blood pressure is the real criterion by which they are judged, which indicates that the severity and seriousness of the disease is determined largely by the extent of arteriosclerosis.

The termination of hypertensive disease, in the majority of cases, is by one of three catastrophes: heart failure, cerebral hemorrhage, or uremia.

Christian says that of 131 cases of high blood pressure occurring under his observation, 25 per cent died of cerebral accident, 32

per cent of cardiac failure, 4½ per cent of uremia and 25 per cent of something that had nothing to do with high blood pressure. Of thirty-six cases occurring under the writer's observation, in the past ten years:

15—(41 2/3%) died of cerebral accident.

3—(8 1/3%) died of cardiac failure (decompensation).

8—(22 2/9%) died of angina.

4—(11 1/9%) died of coronary occlusion.

4—(11 1/9%) died of uremia.

2—(5 5/9%) died of bronchopneumonia.

If these figures even approximately indicate the most frequent termination of hypertensive disease, they show that more than half of our patients having it will die as a direct result of arterial and myocardial degeneration.

If we bear in mind that their lives and safety depend upon its early recognition, and that, once established, the removal of every possible focus of infection may prevent or retard the development of myocardial disease or arteriosclerosis, we will have learned a primary lesson in the prevention of a great human catastrophe.

413-417 *Medical Arts Building.*

ALBUMINURIA IN RELATION TO DISEASE OF THE TONSILS—A FURTHER REPORT.*

By CLARENCE PORTER JONES, M. D., F. A. C. S.,
Newport News, Va.

Before a meeting of this Society which was held in the Spring of 1924, we reported nine cases as having been relieved of albuminuria by removing diseased tonsils, the only exception being a woman who had a small goitre to develop several months later, resulting in a return of albuminuria. After an operation for relief of this thyroid enlargement, however, the albuminuria disappeared and she has remained albumin free. All these nine cases occurred in the year 1923.

We now wish to report thirteen additional cases occurring during the year 1924, which we feel is of some value as a most intensive study was made in each case, and the fact that all happen to be alive and albumin free at this time, over two years having elapsed.

In our report made in 1924, we said: "It is quite commonly conceded by physicians that albuminuria may occur in almost any acute disease, especially in the exanthematous fevers

*Read before the Walter Reed Medical Society, at Yorktown, Va., May 26, 1927.

of childhood. Even frank nephritis is not an unusual complication of acute infections; in fact, it occurs quite frequently after scarlatina, diphtheria and other diseases. However, physicians have not, as a rule, given general recognition to the possibility of renal changes in nasopharyngeal infection, especially tonsillitis. In 1910, H. W. Loeb¹ directed special attention to the fact that acute nephritis is a frequent sequel of tonsillitis, although this is often overlooked by the majority of practitioners. He made a very careful study of the available literature at that time, recording Leydens's observation (1891) of the possibility of nephritis after angina, and Thouvenet's reported case (1894) of marked albuminuria ten days after the onset of acute lacunar tonsillitis. John Lovett Morse, Emil Mayer, Herrick, Friedrich, Mueller, Curschmann and numerous other authors had recognized the occurrence of nephritis after simple acute tonsillitis. Adler² has even recorded the statement that a form of nephritis occurs in at least seventy-five per cent of all cases of pure tonsillitis.

"With the inauguration of the intensive studies of focal infection in relation to systemic disorders the tonsils soon became the object of almost universal suspicion as probably the most common avenue of infection. Frank Billings³ recognized clearly the etiologic relation of nasopharyngeal infections to arthritis and nephritis. This subject has been emphasized also by Shambaugh⁴, who stressed particularly the possibility that tonsil stumps, however small, may be productive of nephritis and rheumatism. Smith and Bailey⁵ reported three cases that demonstrate the close relationship between tonsillar and renal infections. In the presence of chronic disease of tonsils with acute nephritis or pyelonephritis, they recommend immediate tonsillectomy for the purpose of preventing permanent organic injury. Cautly⁶ has cited two cases. One of his patients was observed for almost three years, after decapsulation of one kidney had been performed because of persistent albuminuria, anasarca and ascites. Subsequent transitory im-

provement was ascribed to the operation, but recurrence took place, with edema of the legs and massive albuminuria. This "flare-up" was ascribed to septic tonsils. Within a month after enucleation of the tonsils the albuminuria disappeared and the patient subsequently enjoyed good health. Bumpus and Meisser⁷ report. "It is our custom to have tonsillectomy performed in all cases in which the urinary infection may be reasonably believed to be of focal origin. Since we have adopted this procedure, a surprisingly large number of apparently negative tonsils has been found to hide deep-seated virulent infections." Herman C. Bumpus⁸ points out that the deeply buried tonsil is the most dangerous, as absorption from the crypts is easy; that the large tonsil, although infected, drains its noxious exudates and bacteria into the throat, which are swallowed to bathe the gastric and intestinal mucosa. We had the benefit of careful laboratory studies, including urinalysis, in every case of tonsillitis in a large series, in adults as well as children. Immediately after an attack of acute tonsillitis, albumin was found in over forty per cent of our cases, albumin and pus cells in more than twenty-five per cent, and albumin, pus cells and casts in over five per cent. In the last class of cases, there was always a history of more than one previous attack. If tests for albuminuria or for evidences of hematuria were made systematically by laryngologists in every case of tonsillar infection, it is more than probable that Adler's statement that renal damage occurs in seventy-five per cent of all cases will not prove an exaggeration.

THE SILENT TONSIL

The mere presence of the tonsils may often be considered a determining cause of renal involvement in nasopharyngeal infection. Because of their general structure, their crypts and recesses, the tonsils offer an excellent refuge for pathogenic micro-organisms. Undoubtedly the tonsillar and other lymphoid tissue of the pharynx plays a defensive role against local and general infection, but it has been definitely proved also that it serves as a portal of entry for systemic invasion by virulent bacteria. The etiologic relationship of the tonsils to renal disease, including nephritis and pyelonephritis,

1. Loeb, H. W.: Acute Nephritis Following Acute Tonsillitis. *Trans. Amer. L., R., and O. Soc.*, 1910; also *Jour. A. M. A.*, Nov. 12, 1910.

2. Adler, L.: Remarks on Some General Infections Through the Tonsils. *N. Y. Med. Jour.*, March 31, 1906.—Quoted from Loeb.

3. Billings, Frank: Chronic Focal Infections and Their Etiologic Relation to Arthritis and Nephritis. *Arch. Int. Med.*, 1912.

4. Shambaugh, G. E.: *Trans. Amer. Rhinol. Assn.*, 1913.

5. Smith, D. L., and Bailey, W.: *Arch. Pediat.*, Aug., 1923.

6. Cautly, E.: The Kidneys and Tonsillar Infections, *Arch. Pediat.*, Feb. 1923.

7. Bumpus, Herman C., Jr., and Meisser, John G.: Foci of Infection in Cases of Pyelonephritis. *Jour. A. M. A.*, Nov. 2, 1921.

8. Bumpus, Herman C., Jr.: Certain Aspects of Focal Infections Commonly Misunderstood. *Med. Jour. and Rec.*, April 2, 1924.

need not necessarily be evidenced by tonsillar hypertrophy. If diseased, any tonsil or tonsillar remnant, no matter how small, may provoke systemic complications that lead to renal changes. In the final analysis, the kidneys are primarily excretory organs, serving as filters for inorganic salts as well as organic detritus, including bacterial products. The patients often have a septic appearance, are in a general run down condition, and often complain of stiffness in the neck during deglutition. There is usually some enlargement of the sentinel gland. Inspection of the pharynx, discloses that the anterior pillar is darker in color than the other pharyngeal structures and is firmly adherent to the tonsil. The surface of the tonsil is more or less smooth, the crypt mouths being very small and difficult to locate. The crypts contain considerable retained secretion under pressure. The tonsil is light in color, for its surface is bathed in a white filmy substance like very thick saliva. To such a tonsil in our former report, we assigned a name "Silent Tonsil." We see no reason to change the nomenclature. In the presence of this tonsillar finding, experience has demonstrated that we can confidently anticipate discovering albuminuria.

The thirteen cases we report occurred in our clinic at the National Soldiers Home, Southern Branch. Twelve are World War Soldiers; and one a woman, aged twenty-nine years. We are deeply indebted to Doctors Shillinger, Eames, Cullinan, Erwin, Newman, Woodward, and also to Miss Louise Brown, the laboratory technician. Each case had had no history of acute tonsillitis of any severity, but had had persistent albuminuria for at least four months. Each patient went through the same routine of intensive study, having been examined by men who are most competent in their respective fields, internist, neuro-psychiatrist, cardiologist, genito-urinologist, surgeon, roentgenologist, etc. A complete laboratory examination, including for malaria, blood sugar and Wassermann, had also been made, as well as complete X-ray studies with particular reference to teeth and nasal sinuses. Also, in the study of these patients there was an eye single for any suspicion of gall-bladder or any gastro-intestinal disorder. If there remained in the minds of any of these examiners any suspicion of any additional focus, the case was ruled out. This series would have been very much longer had not such expressions as "suspicious tooth,"

"shadowy antrum," "heart murmur", "possibly an infected prostate", "doubtful appendix", etc., been made in reports by these examiners. Therefore, in common parlance, these cases "came clean" or as nearly so as it was humanly possible to have them. The urinalysis showed albumin in all cases, pus cells in seven cases, white blood cells in considerable number in four cases, and casts in three cases. After tonsillectomy the urine was examined daily for one week, then every third or fourth day until albumin free urine was found at two more examinations, then again in thirty days. The urine was albumin free, remaining so, in four days in one case, nine days in one case, ten days in one case, eleven days in one case, twelve days in four cases, thirteen days in one case, fourteen days in one case, sixteen days in one case, eighteen days in one case, and twenty-two days in one case. Each case is well and has had an urinalysis within a year, which proved albumin free.

These "silent tonsil" cases were all submitted to tonsillectomy. In each case, the general pre-operative procedure was identical. The patient was kept in bed for from two to five days, on a light diet with plenty of water and other fluids. On the day of operation, thirty minutes before administration of ether, the patient received a hypodermic injection of morphin, $\frac{1}{8}$ to $\frac{1}{4}$ grain, with atropin, $\frac{1}{150}$ grain. The tonsils were enucleated without undue haste, extreme care being exercised to remove every vestige of the tonsils, including any sub-tonsillar lymphoid tissue, and all adenoid vegetations. After the operation, the patient was kept in bed for from three to seven days. During this time the urine was examined daily, and an able internist co-operated in attending to the cases. The albuminuria disappeared completely in from four to twenty-two days, and repeated examinations in every case have failed to disclose recurrence of the urinary symptoms. So far as general physical improvement and cure of albuminuria are concerned, the results have been perfect in all patients.

CONCLUSIONS

1. Routine tests will disclose the presence of albuminuria or other evidences of nephritis in the majority of cases of acute tonsillitis or other tonsillar infections.

2. In cases of albuminuria of doubtful origin, careful examination of the pharynx may

often determine the etiologic relationship of diseased tonsils.

3. Hypertrophy or severe inflammation of the tonsils is not necessarily an index of the etiologic relationship of the pharyngeal lymphoid tissue to renal involvement. Even small tonsils or a mild attack of tonsillitis may provoke marked nephritis.

4. Thorough enucleation of the tonsils, including the subtonsillar lymphoid tissue and adenoid vegetations, assures the prompt cure and prevents the recurrence of the related albuminuria.

3117 West Avenue.

SOME REMARKS ON THE TREATMENT OF INFECTIONS AND INJURIES OF THE EXTREMITIES WITH SPECIAL REFERENCE TO THE USE OF PHYSIOLOGICAL SALT SOLUTION.*

By RAY A. MOORE, M. D., Phenix, Va.

It is with some hesitation that I advocate a procedure so simple in application and so obviously indicated from the nature of the case that it may be already a routine and general method of practice.

However, I am emboldened to bring this matter to your attention for several reasons: first, it may have been overlooked on account of its very simplicity, for it is a trait of human nature to neglect the simple though efficacious means to an end while looking for the more spectacular though it may be the less effective; second, I want to emphasize the importance of attention to some of the smaller details in the treatment of this condition. Attention to detail is an important thing, often overlooked anyway, and especially too often overlooked in the treatment of infections and minor injuries of the extremities; third, it suggests and involves a review of the pathology of inflammation and the physiology of regeneration—a biologic study that is always profitable to us. And finally, an experience of eighteen years in which I have used this method as a routine has convinced me of its usefulness.

The treatment consists in immersing the part in physiological salt solution—9 parts sodium chloride to 1,000 parts of distilled water, or, for practical purposes, one drachm of salt to one pint of boiled water. The solution should

be as hot as can be borne in treating an infection and a little above body temperature when used to aid regeneration and repair. This soaking is kept up from twenty to thirty minutes with the part in a dependent position. Then it is elevated at an angle of approximately 45° and massaged gently downward for the same length of time. Then the dressing is applied and the part kept slightly elevated. This should be done twice in the twenty-four hours in mild cases and four to six times in severe infections.

At first glance, this procedure may seem merely a means of producing hyperemia. This alone would make it worthy of consideration, for, as Horsley says (*Operative Surgery*, Page 30), "Hyperemia is connected in one way or another with all surgical questions whether they concern treatment of inflammation or repair of a wound." But a study of the question will show that this is not its only advantage.

This treatment is wholly applicable only to infections and injuries of the extremities, but when we consider the proportions of such injuries here to other parts of the body, the treatment is not so much limited after all. But before proceeding further, I shall report a few illustrative cases.

Case I. Farmer, aged 30. Gave history of having jumped from a moving passenger train three days previously, falling and splitting the palm of his hand wide open. The wound had been sutured and bandaged tight and untouched until I saw it. The hand and the forearm were in a strut, pitting on pressure as far as the elbow. His temperature was 103, and pulse 110, and the picture that of the onset of a severe infection. There was a yellow exudate but no pus from the wound which gaped between the sutures. I cut the sutures, allowing the wound freer drainage (though it was draining very well at the time), and immersed his arm in a hot normal salt solution, gently massaging downward and adding hot water and salt as necessary, until his hand and arm looked shrivelled. I probably kept this up for an hour or more as it caused such relief from the pain and such a noticeable disappearance of the edema. I then dried the arm by stroking from the hand towards the elbow, and elevated it. I figured that the heat, and the solvent and cleansing power of the saline solution had gotten rid

*President's address before the South Piedmont Medical Society, November, 1924.

of most of the poison then formed, and next I wanted to scatter the remnant out through the system where there would be no locality of deadly activity from the infection, because the phagocytic cells, finding the enemy well scattered, could easily overcome them. This was about 5 P. M. The case looked so bad that I did not allow the man to go home, but had him repeat this soaking, as above, again that night and the next morning, when the picture was an entirely different one. The hand and arm were nearly normal in size, there was no pitting on pressure, except a little on the back of the hand; temperature practically normal, and the patient perfectly comfortable. The treatment was kept up twice a day until the wound had healed. Of course, I do not mean to claim that the use of the salt solution was entirely responsible for the results, but simply that it had an important part in it. Other details in the treatment of this case were, in brief: cutting the sutures, removing the tight dressing, keeping clean dressings applied, giving the patient a brisk cathartic, attention to diet, etc.

The case reported illustrates the greater number of cases seen by the general practitioner, and the procedure used can be applied equally well whether it is an open or a closed wound. This report also illustrates cases where the patient's resistance is good, and where pus readily forms and is easily evacuated. The treatment under discussion is very useful in such cases, but it is much more useful and well nigh indispensable in those cases of inflammation where you have the swelling and edema with little or no pus formation. I want partially to report a case to illustrate that condition.

Case II. Farmer, aged 54, came to my office the morning of May 17, 1924, stating that he had been bitten at 5 P. M. the day before by a "copper head," both fangs of the snake passing through the index finger of his right hand. Hand and arm were swollen and edematous, and the bitten finger purple. Since midnight he had been suffering agonizing pain all over the body and especially in the axilla of that side. He had "just walked the floor all night," as he expressed it. He was so weak and nauseated (shocked) that I had to put him to bed until late in the afternoon, before he was able to go home. I used hot saline and hot permanganate of potash

solutions alternately that day, the latter seeming to give more relief from pain. I heated him up, gave him whiskey, strychnine and other symptomatic treatment, as indicated, and administered anti-streptococcic vaccine. The condition cleared up very well in a week or ten days, except that the finger turned black and looked like it was going to slough off. We continued the use of the saline soakings three or four times a day, as already described. After ten days or two weeks the ball of the finger sloughed off, leaving the bone exposed in front, but the back of the finger intact, though still dark, giving the finger somewhat the appearance of a hawk's bill. By this time I had taught the man the use of the saline solution and of protective dressings, so I told him to keep them up and had him report occasionally. It was remarkable how rapidly the finger filled in. I saw the patient about a week ago. He had a complete finger, plus a little projection in front of the nail. I believe that this treatment—heat, salt solution, changing positions, etc., persisted in as it was, saved that man a finger. I might add here that he lost only about ten days from his work.

I want to report one other case which illustrates a type of cases in which this treatment is especially applicable.

Case III. R. W., girl, aged 12. Saw her about an hour after she had cut through the last phalangeal joint of index finger of right hand, completely severing the finger and leaving it swinging by a narrow piece of skin on the inner lateral aspect of the finger. The end of the finger was cold and apparently lifeless. I soaked that hand (and finger) in warm saline solution for an hour before suturing it back in place. In dressing it I first ran a strip of rubber mesh over the end of the finger and strapped it to the finger with adhesive above the injury in such a way as to hold the cut-off finger in place and yet not prevent free access to it. Next a thin layer of gauze was loosely applied and that finger immobilized with a splint. In this way the stimulus for the lymph is provided with the gauze, while the rubber or parawax prevents its attachment and thereby saves the tearing away of the granulating cells. This much of the dressing was allowed to remain until some union had taken place, the dressings down to this being removed for treatment. For four

or five days I used the saline soakings once a day and had the patient keep the dressing wet with saline during the interim. Hot water bags continuously applied kept up heat in the part until the circulation was re-established. The severed part of this finger sloughed off very much like that of Case II, but regeneration was much more rapid. Recovery was complete.

This case illustrates some very important details in the treatment of infections and injuries of the extremities. It is perfectly wonderful to see what nature will do in the way of repair if you, by a careful application of biologic principles, first see that she is not obstructed or interfered with, and, in the second place, assist here in any way you can. Protective dressings may be used in such a way as to stimulate lymph (the layer of gauze), prevent granulations from being destroyed (parawax, rubber mesh, etc.) and to a large extent do away with discomfort. Air and sunshine are very helpful. I often use some form of muzzle with one thickness of gauze or wire mesh which does not keep out sunlight and air. Again, I sometimes have the patient hold the part in the sunlight with all dressings removed. This is very useful when the wound drains too freely because of friction from the dressings. Variety furnishes a stimulus here, as elsewhere.

SUMMARY

In concluding, let us keep in mind the fact that we are discussing, as an entity, heat, physiological salt solution and the utilization of the laws of gravitation. You might ask, why not use some other drug in the place of sodium chloride. The advantages of natural salt solution are, briefly: it is always available, it is cheap, is non-toxic, is a solution practically isotonic with the blood, is as good as any antiseptic we have, and at the same time does not injure tissue.

Modus Operandi:

(a) Relieves pain by relieving the tension in the tissues.

(b) Furnishes heat—directly (the hot saline) and indirectly (the rush of blood to the part).

(c) Stimulates resistance by bringing a fresh blood supply to the part (blood is the enemy of bacteria), by increasing leukocytosis and by decreasing relative number of invaders to defenders.

(d) Supports the general and local circulation by promoting and increasing the circulation of blood and lymph through the part.

(e) Encourages elimination, as above explained, by increasing the direct evacuation of pus, and by enhancing the resistant power of the part.

(f) Encourages and aids regeneration and repair by furnishing nourishment from without as well as from within, by clearing away excess material that might promote the growth of bacteria, by cleansing the granulation surfaces without inhibiting the growth of new cells, or destroying them.

REFERENCE.

McGuire. Principles of Surgery.

ACUTE EAR CONDITIONS IN GENERAL PRACTICE.*

By H. D. GILMER, M. D., Hagerstown, Md.

When your president invited me to appear before your Society, he stipulated that I could present a subject of my own choosing. Naturally, I chose something in keeping with my own line of work.

I understand that you have a very full program today so I will try to come quickly to the point and not tire you.

My intention is to give you a short practical talk, something that may be of assistance to you in your every-day work, rather than tire you with technicalities and statistics.

I am glad that I was once a country doctor, and I know their short-comings as well as their virtues. In general practice I had experience that I could not have gotten elsewhere and that experience has been very valuable to me in my special work. In fact, I believe every man taking up special work should have had some experience in general practice, for so much depends upon the general condition of the patient.

I want to talk to you today in regard to "Acute Ear Conditions in General Practice," and, to do this more clearly it might be well to consider briefly the anatomy of the ear.

The ear is divided for study into three parts, the external ear, middle ear and internal ear. The large expanded part, or pinna, and the external auditory canal comprise the external ear. The external auditory canal is about an inch and a quarter long and extends forward and inward to the membrana tympani, or ear

*Read by invitation before the Warren, Rappahannock and Page Medical Society, in Front Royal, Va., April 19, 1927.

drum. A normal ear drum is pearly and translucent, with a triangular bright spot, known as the reflex cone of light.

The middle ear is a small cavity located between the membrana tympani and internal ear, and contains the small ossicles, the malleus, incus and stapes. These small bones form a chain, and transmit the sound vibrations from the drum to the oval window in the internal ear. The middle ear has two openings, the Eustachian tube and the aditus ad antrum. The Eustachian tube gives ventilation and drainage to the middle ear and equalizes the atmospheric pressure. This is often interfered with by enlarged tonsils and adenoids. The upper part of the middle ear is known as the attic, and from this there is a small opening, the aditus ad antrum, leading to the mastoid antrum. The mastoid antrum is the largest of the mastoid cells, is situated above and behind the external auditory canal, and communicates with other numerous cells scattered throughout the mastoid bone. These cells are all lined with mucous membrane, as in the middle ear. This will show you that any infection of the naso-pharynx may easily travel up the Eustachian tube to the middle ear and into the mastoid cells.

The internal ear, or labyrinth, contains the vestibule, semi-circular canals and organ of Corti, the essential organ of hearing.

Every general practitioner should be able to look into an ear and get a fairly good idea of the condition there in. With the electric otoscope or reflected light, it is quite easy to look into an ear. Take every opportunity you have to look in ears and you will soon be able to distinguish between the normal and abnormal. Your first experience will probably be with cerumen, or ear wax. Provide yourself with a good ear syringe and it will be one of your best investments. With this and warm water the wax may be easily removed unless it has become hardened and dry; then you have a different proposition. If you do not succeed after a reasonable effort, have the patient use peroxide or glycerine for a day or two and come back for another trial. After you think you have it all out, look into the ear to be sure; then dry the ear of water before you let him go. Do not attempt to remove wax with a spoon or probe, as you will be apt to cause pain and injure the canal wall.

A patient will often come to you in great alarm and for urgent relief; a bug or fly has

gotten into the ear. Pour in a little sweet oil and in a few minutes you can syringe it out. In syringing out ears be careful of the temperature of the water; if too hot or too cold the patient will become dizzy. The water should be just comfortable to the touch.

Most any foreign substance may be washed from the ear unless it is a grain of corn or bean which has become swollen or wedged.

Furunculosis of the external auditory canal is a condition you will see quite frequently. The patient will complain of much pain in the side of head and in movement of the auricle. This is a diagnostic sign between furunculosis and mastoiditis. In mastoiditis the pain is behind the ear and occipital. Patients with chronic discharging ears are prone to have furunculosis of the canals; it may also be caused by patient scratching ears after scratching hairy parts of body. Paint the canal with 5 per cent nitrate of silver and if the furuncle points, open it, but be careful not to make a deep incision or you may cause a perichondritis. Sometimes the furuncles will be quite persistent, one coming after another. In that case, I find the mixed vaccines very effective. The acne sero-bacterines answer the purpose very well.

The most important and most serious conditions you will meet with are the acute middle ear disease, for the reason that they are so often neglected and mean so much to the patient. Acute otitis media is rarely a disease *per se*, but is most usually a complication of some infection of the throat or post-nasal space. Why? Because you have an open channel, the Eustachian tube, forming a direct communication with the middle ear.

The most common causes are the acute infectious diseases, grippe, measles, scarlet fever, pneumonia, acute tonsillitis and sinus diseases. Contributory or predisposing causes are enlarged tonsils and adenoids and deflected nasal septi. Ordinarily the ciliated epithelium of the Eustachian tube will carry off the secretions, but when the tube becomes swollen or blocked by large adenoids the secretions are dammed back up into the middle ear.

Symptoms.—The first symptom is usually earache, slight rise of temperature and slight deafness. In children the only sign you may have is restlessness and crying. If the ear is examined at this time, the drum will be found reddened with small vessels extending across from the margin.

Some cases will only advance to this stage and then clear up. If there is no improvement in the next few days, there will be increased deafness and the drum will be found bulging, the reflex cone of light absent, and all landmarks lost. If allowed to go on, it will open and discharge on its own accord, but in the meantime the infection may travel back into the mastoid cells and you will have a mastoiditis.

A bulging inflamed ear-drum should invariably be incised at once. Failure to do so may mean mastoiditis and complications such as lateral sinus thrombosis and meningitis, possibly brain abscess.

The symptoms of mastoiditis, in the beginning, are the same as acute otitis media with added tenderness and redness behind the ear and occipital headache. In young children the mastoid cells are not developed and the mastoid antrum only is involved. The cortex is thin and often the pus will break through and cause a peri-ostitis and sub-periosteal abscess. This will cause the ear to stand out very noticeably from the side of the head.

Treatment.—The patient should be put to bed, given a cathartic and, if necessary, an opiate. Ten per cent carbolic acid in glycerine should be instilled in the ear every three hours; sometimes this will suffice. If the drum bulges, it should be incised, but it is not necessary to incise all inflamed ear drums, as this is often a part of the general inflammation of the naso-pharynx.

I cannot urge you too strongly to always examine the ears of children who have an acute infectious disease. You will be well rewarded and often surprised that you have overlooked an inflamed ear. For instance, in a case of pneumonia, the temperature may come back to normal and in a few days have a slight rise. It may be caused by a middle ear condition, and suppose you do not examine the ears? On your next visit the mother may tell you that the child is much better; that during the night it went to sleep and the next morning the ear was discharging.

To continue with the treatment:—When an ear starts to discharge, it should be irrigated with warm boric solution every three or four hours, depending upon the amount of flow. After cleansing, instill your glycerine and carbolic mixture. After the discharge lessens, you may use mercurochrome, 2 per cent, or

other antiseptic solution until discharge ceases. If a stringy mucous discharge persists, it is probably due to adenoids, and they should be removed. If a thick purulent discharge persists more than ten days, you will think seriously of a mastoiditis, and this usually means an operation, opening and draining the mastoid cells. The majority of cases of chronic running ears are due to an untreated mastoiditis. The mastoid should be operated, not only for the cure of the disease, but for the preservation of the hearing. The simple mastoid operation is conservative and comparatively safe. The failure to operate at the proper time may mean a chronic discharging ear, or possibly dangerous complications—lateral sinus thrombosis and meningitis. Most of the brain abscesses are of otitis origin, coming from a chronic mastoiditis. In practically every case of chronic middle ear infection the mastoid cells are involved. A person with chronic middle ear disease has been likened to carrying around a stick of dynamite,—you never know when it will explode.

The laity, as a rule, do not look upon a discharging ear as a serious condition, but will come for treatment on account of the foul odor or inconvenience of the discharge, not knowing the grave danger to which they are being subjected.

Lastly, and in conclusion, allow me briefly to summarize:

1. In syringing ears, be careful of the temperature of the water; if too hot or too cold, you will cause the patient to become dizzy.
2. Be sure to examine the ears of all children with acute infectious diseases.
3. A bulging ear-drum should be incised at once; failure to do so may mean a mastoiditis.
4. A thick purulent discharge continuing for more than ten days is strongly suggestive of mastoiditis.
5. The simple mastoid operation is conservative and comparatively safe.
6. The failure to operate at the proper time may mean a chronic running ear.

OBSERVATIONS ON A CASE OF PITUITARY TUMOR WITH UNILATERAL QUADRANT HEMIANOPSIA.*

By FRANCIS G. SPEIDEL, M. D., Washington, D. C.

Of all intracranial tumors, those of the hypophysis most frequently induce visual dis-

*Read before the section on Ophthalmology and Otolaryngology, Medical Society of the District of Columbia, April 15, 1927.

turbances, on account of the intimate anatomical relations existing between the pituitary gland and the optic structures. Visual impairment is usually progressive, depending on the type of growth, its relation to the optic chiasm, nerves or tracts, and its rapidity of growth. A large proportion of patients suffering from this condition seek medical aid primarily on account of failing vision. Frazier¹ states that of a series of 100 cases, failing vision in eighty-seven patients was the outstanding indication for treatment; that atrophy of varying degrees had occurred in forty-one, and in half of these there was total blindness in one eye, with deterioration of vision in the other eye.

Serious visual defects may be present, unknown to the patient; the writer has observed one such case in which one eye retained fair vision, but the other eye was totally blind, unknown to the patient. Various defects have been described as being associated with this condition, such as lowered visual acuity; defects in the visual fields, especially hemianopsias; the classic bitemporal hemianopsia; alterations in the fields for colors; scotomata, central and paracentral; and alteration in the color of the nerve heads.



Fig. 1.—Normal Sella and Clinoid Processes.

The roentgenographic examination of the sella turcica is an important diagnostic procedure. Camp² states that "by virtue of its location, a pituitary tumor is unable to produce an increase of intracranial pressure until it has reached considerable size; consequently, the presence of a uniform circular enlargement of the sella, with thinning of the dorsum sellae and erosion and distention of the floor, without evidence of intracranial pressure changes

in the rest of the skull, except in very advanced cases, is quite indicative of intrasellar tumor." This observation may account for the relative infrequency of choked disc, but, as enlargement of the growth occurs at the expense of contiguous structures, we have the explanation of the constant visual disturbances associated with this type of intracranial tumor. Dr. Dandy³ has made the observation that the X-ray is of greater value in the diagnosis of pituitary or suprasellar tumors than any other intracranial new growths.

Deterioration of central or peripheral vision, with negative, or nearly negative, ophthalmoscopic findings, is not unusual, the visual disturbances being out of all proportion to any recognizable pathologic conditions in the fundi. Benedict⁴ has very aptly noted that in other

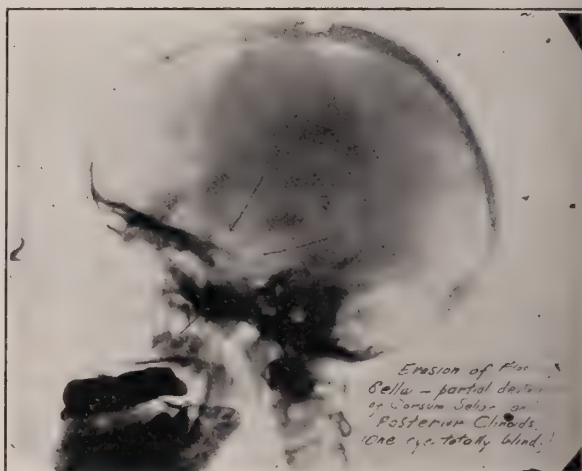


Fig. 2.—Erosion of Floor of Sella—Partial Destruction of Dorsum Sellae and Posterior Clinoids. (One eye totally blind.)

forms of atrophy, such as that associated with tabes, the atrophy is shown by pallor and excavation of the nerve heads, and vision is often better than would be suspected from ophthalmoscopic examination alone, while in lesions due to pressure at the chiasmal region, the nerve heads may remain unchanged for months or years, and at a late period a yellowish, waxy pallor occurs without shrinkage or loss of substance; at a still later period true atrophy may occur.

Dandy⁵ in connection with his work on ventriculography has noted that occasionally the air injection causes latent field defects to become manifest; this occurred in the case to be reported.

REPORT OF CASE

Mr. S., aged 52, salesman, came under ob-

servation September 5, 1925, complaining of vertigo; onset about one year previously; several years before he had had attacks of headache. Had never had any nausea or vomiting, and had never been conscious of any visual disturbances. The neurological examination indicated the probability of an intracranial tumor,

the patient was advised of the probable necessity of an operation. He decided to go to Johns Hopkins Hospital for surgical treat-

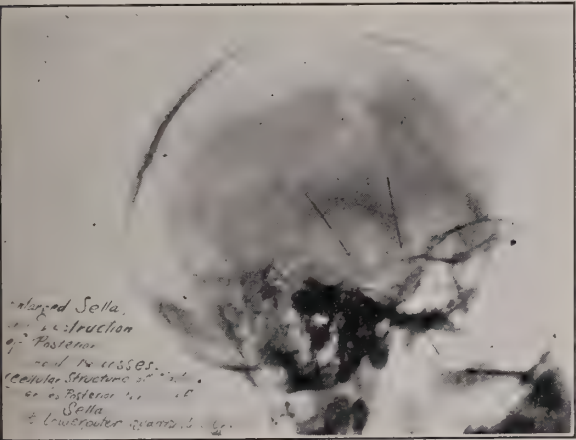


Fig. 3.—Enlarged Sella and Destruction of Posterior Clinoid Processes. (Cellular Structure of Mastoids Overlies Posterior Portion of Sella). Rt. Lower, outer Quadrant Defect.

and a roentgenogram of the head indicated enlargement of the sella turcica, with destruction of the posterior clinoid processes (Fig. 3). Vision, each eye, 20/30. Tracings of the visual fields revealed an absolute right lower outer quadrant hemianopic defect (Fig. 5). The ophthalmoscopic appearance of the nerve heads seemed to be normal, neither atrophy nor elevation being present in either. At this time,

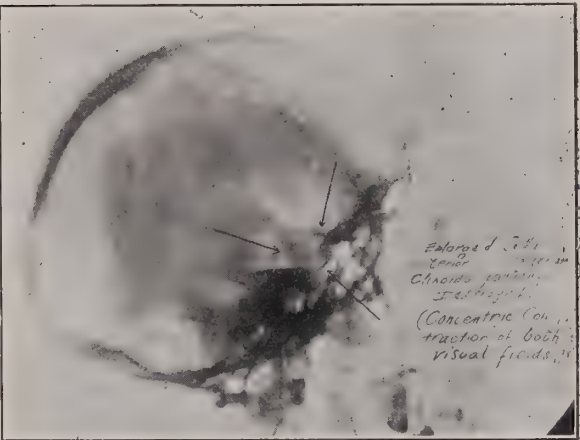


Fig. 4.—Enlarged Sella Anterior and Posterior Clinoids Partially Destroyed. (Concentric Contraction of both Visual Fields.)

ment, and the following abstract is from the records of that institution:

A complete and exhaustive neurological examination was made, which, however, failed to reveal any definite localizing signs. Roentgenograms showed excavation of the floor of the sella turcica, with destruction of the posterior clinoids. The eye grounds were reported as being normal. Further studies of the visual fields were undertaken; tested by different examiners, or at different times by the same examiner. There were variations in the findings, the right eye showing at times an hemianopsia. The visual field tracings showed the lower

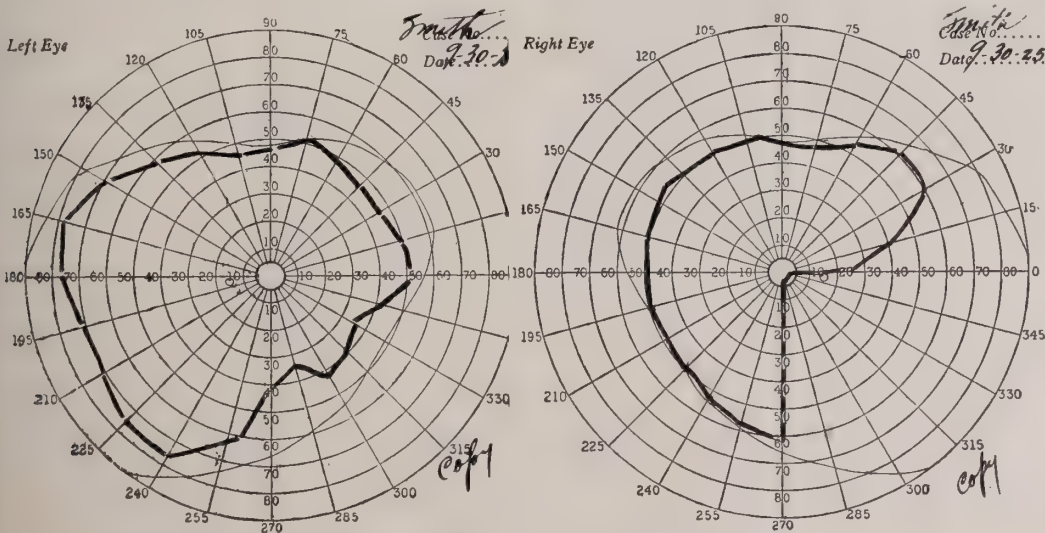


Fig. 5.—Right quadrant hemianopsia; pituitary tumor.

outer quadrant of the right eye missing. Following the injection of air into the ventricles for purposes of ventriculography, a complete right homonymous hemianopsia developed, which persisted to the time of the operation.

November 7, 1925, operation was performed. A tumor originating from the hypophysis was found, but this had extended beyond the limits of the sella, upward toward the base of the brain and rather far posteriorly; an aneurysmal dilatation of the left internal carotid was exerting pressure on the left optic nerve; although only a partial resection of the tumor was done, there was profuse hemorrhage and shock, and the patient failed to survive the operation. Post-mortem examination revealed a tremendous tumor of the pituitary, with destruction of adjacent bone, compression of the basilar artery, and with an extension into the pons.

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Rochambeau Apartments.

JOHN CULLEN.

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

The calibre of many of the men who composed the medical profession of Richmond one hundred years ago was exceptional. Their education and training, their habits and accomplishments arouse our admiration. Foremost among the physicians of that day was John Cullen.

Cullen was born on February 1, 1797, in the city of Dublin, Ireland. There he grew up, and was educated. His training was completed at Trinity College. Napoleon had meanwhile remade the map of Europe and centered in Paris much of the art and intelligence of the world. Young Cullen at the age of 17 went to Paris to further prosecute his studies. On one occasion he felt the iron hand of the Emperor. His uncle lived in Salamanca, Spain. The nephew set out to visit him, but was arrested and brought back to Paris. He was fortunate in being set at liberty. He made the most of his time now studying French, anatomy and

surgery. It was a transition period in medicine in Paris. As an American student wrote "They were always telling of Hippocrates, Galen, Celsus; etc., as if not a particle had been added to the stock of knowledge since their time". Broussais' supremacy was just beginning to be shaken. "Observation and method" were displacing theory and speculation. Corvirsart, Napoleon's physician, had done a great service, in translating the *Inventum Novum* (1808). Laennec was busy with his clinicopathological studies, but it was not until the year after Cullen left Paris that the inspiration of the stethoscope came to him; and his great work on auscultation did not appear for three years more. After the collapse of Napoleon, June, 1815, Cullen went back to England. As a matter of fact he took passage on the same ship with the allied sovereigns.

It was New York, not Ireland, that now attracted him. So he set sail again and landed in America. The young son of Erin found employment as a chemist working with what was considered in that day a large manufacturing company. His interest in this science stretched back to his student days and later on we find him lecturing on chemistry in Petersburg, Va. For a career, however, he had determined on medicine, and shortly made his way to Philadelphia where he began study in the University of Pennsylvania. Among the faculty at this time were Philip S. Physick and John Syng Dorsey. Dr. Dorsey became very fond of young Cullen and took him as his private pupil. It is said that but for the death of Dr. Dorsey in 1818 they would have been associated in practice. As a tribute to this affectionate relationship years after, Dr. Cullen named a son, John Syng Dorsey. After graduation he served in the "Alms-house" as one of the resident physicians.

About 1820 Cullen made a trip to Virginia. Shields says the object of this visit was to confer with Mr. Jefferson about a position at the University of Virginia. But for the intervention of sickness he might have joined Dunglison on the faculty there. It appears he at first went to Petersburg on the invitation of his friend Dr. Robertson to lecture on chemistry. On his way through Richmond one of those fevers about which Bartlett wrote, and which were so common at the time, laid him low. He never reached Charlottesville. On his recovery, his new made friends had no difficulty in persuading him that after all the capi-

tal of Virginia offered splendid opportunities for a young man of his training in medicine. Richmond was then a city of only 6,000 whites but was enjoying the peace and prosperity that followed the Revolution. Soon after Cullen's arrival came Lafayette on a rainy October day, and not long after this the great Constitutional

razed and the Richmond Press stands on the site.

In 1838 Dr. Cullen was one of the group of five who planned and organized in Richmond its first medical school as the Medical Department of Hampden-Sidney College. He occupied and ornamented the chair of the Practice of Medicine until his death. He shared in the struggles of the young institution against poverty and political opposition. The school grew and moved into a fine new structure in Academy Square in 1845. He was active in the fight of 1854 which involved the whole state and which ultimately gave his institution a new and independent charter. He was a founder of the Medical College of Virginia and the distinguished first professor of medicine.



From the original silhouette of John Cullen, in possession of Dr. Joseph L. Miller.

Convention was held on Academy square near the site of the present old Medical College building—a building for which Cullen himself was to be largely responsible. The two famous parsons, Blair and Buchanan, died soon after his arrival.

The young Irishman, now twenty-three or four, was a fine specimen of manhood, standing six feet, with a full red face, blue eyes and dark brown hair. He dressed superbly in the style of the times—high hat, long tail frock, velvet vest, silk scarf, and dark pants. In the early days of his practice he went on horseback. In later years he was to be seen, often with his two boys, riding in a closed carriage behind two fine roans.

He rapidly acquired a large practice in Richmond. His business methods were in advance of his time. He employed a full time male secretary. He built a large house on the corner of Ross and Governor streets, overlooking the Capitol Square, with commodious offices on the first floor. This house later became the original St. Luke's hospital. It has since been



From a portrait of John Cullen, in possession of Dr. Leigh, of Danville, Va.

Dr. Cullen enjoyed the reputation of being an orator. His teaching was primarily from the rostrum, though he met and instructed students at the bedside in the college infirmary which was often crowded with typhoid fever. He held his listeners by his fluent and rich Irish brogue, punctuated with a rare admix-

ture of wit and satire. The gold snuff box was always in evidence and the lecture was never underway until he had gracefully taken snuff before the class. Dr. Cullen's contributions to medical literature must have been few, if any. Search through the current journals of the time failed to disclose his name. There are several bound manuscripts in the library of the College of Physicians of Philadelphia which were recently a gift from the descendants of Dr. Cullen. They were given to this library because Dr. Cullen got his medical education in Philadelphia, and were thought by the donors to be his lecture notes. However, they bear the name of William Cullen, and are now considered by the librarian of the College of Physicians to be notes taken from the lectures of the great Edinburgh physician. But there is no record of John Cullen having studied in Edinburgh.

Among the interesting things the late Dr. Charles Shields relates in a paper about Dr.



John Cullen's Tomb, Hollywood Cemetery.

Cullen, under whom he studied, are the details of his treatment of certain common diseases. They reveal in a charming, sometimes shock-

ing, way the therapeutics of the last century. He was described as a bold therapist, when the lancet was part of the armamentarium of every physician and Rush had so popularized the use of calomel as to call it the Sampson of Medicine. Shields recalls a case of tetanus cured by Dr. Cullen's lancet. Acute pleurisy he first bled—bled as did others until syncope intervened. Four grains of opium were then administered and, if pain was a prominent feature, a blister was applied. For mumps he gave a large dose of calomel, followed by a Seidlitz powder every four hours. If severe purging then became alarming, four grains of opium turned the scales in the other direction. His treatment of delirium tremens appears to have been heroic and was as follows: Calomel Gr. xx, Ext. Colocynth Comp. Gr. x, and Croton oil mxii, followed by a saline purge, and then opium, if the patient did not sleep, obeying the popular dictum "that the patient must sleep or he will die".

After thirty years of incessant work and practice, Cullen became ill. He sought advice in Philadelphia. His disease was pronounced softening of the brain. He demanded to be bled, but his favorite knife could not stem the course of his malady. He died in the 52nd year of his life. He was a genial, gentle and approachable man.

In Hollywood Cemetery, amid the ivy, oaks and magnolias, on a high eminence, stands a tall granite shaft with this simple inscription:

JOHN CULLEN, M. D.
BORN IN THE CITY OF DUBLIN,
IRELAND,
FEBRUARY 1, 1797.
DIED DECEMBER 25, 1849.

NON-SPECIFIC PULMONARY INFECTIONS WITH CHRONIC SINUSITIS AS AN ETIOLOGICAL FACTOR.*

By GRANT PRESTON, M. D., Harrisonburg, Va.

From a review of the literature, it seems that prior to 1918 little attention was given to the study of non-specific lung infections. Whether this seeming indifference on the part of the profession to an important malady was due to failure of our methods of diagnosis or to a dearth of material, I do not know. It is generally believed that there has been a great increase in diseases of the upper respiratory

*Read at the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology in Charlottesville, Va., April 30, 1927.

tract since the recent epidemic of influenza. However, it is hard to believe that, with the prevalence of sinus disease prior to that time, chronic, non-specific lung infections did not occur frequently. We know that sinusitis was of frequent, if not constant, occurrence in the cases of this epidemic, and many of these which did not result in spontaneous recovery were not recognized and resulted in chronic sinusitis. As a result of this increase in chronic sinusitis cases, we undoubtedly have had a proportionate increase in its sequelae. We also know that in the last decade, partially due to the opportunity of studying large numbers of soldiers of the recent war, great improvement in our methods of diagnosis has been made. This is particularly true of chest work, where our knowledge of tuberculosis has been greatly increased. It seems, therefore, more logical to believe that, although there have been more cases of chronic non-specific lung infections due to sinus disease since the influenza epidemic, many cases occurred prior to this time and were incorrectly diagnosed as tuberculosis.

This paper is written with the desire to emphasize the necessity of greater co-operation between the general practitioner or chest man and the rhinologist. I am attempting to deal with this subject from both the viewpoint of the internist and the rhinologist, for only in this light can these cases be recognized early and rehabilitation be expeditiously carried on. The responsibility rests largely on the rhinologist, for these lung infections can be eradicated by the early recognition and treatment of sinus lesions.

CLASSIFICATION

A proper classification of chronic non-specific lung infections resulting from sinus lesions is difficult, for it is conceivable to have any type of lung inflammation of a non-specific nature. Those cases which are met with most frequently, however, and those with which this paper has to deal chiefly are, in the order of their frequency of occurrence, (1) chronic bronchitis, (2) bronchiectasis, (3) bronchial asthma.

There are also certain cases more remotely associated with chronic sinusitis, such as (1) chronic broncho-pneumonia, (2) chronic interstitial or unresolved pneumonia, (3) lung abscess and (4) empyema. While these will be only briefly considered, I trust that they will create discussion, as my experience with them

as sequelae to chronic sinus infection has been entirely lacking.

PATHOLOGICAL ANATOMY

For a thorough understanding of the etiology, distribution, and diagnosis of these conditions, a clear conception of the pathological anatomy involved is essential.

Drs. Dunham and Skavlem, and Drs. Mullin and Ryder have contributed greatly to this line of research, and, in the following paragraphs, I wish to quote freely from their studies.

In more severe cases of ordinary coryza, the accessory sinuses are acutely inflamed and subject to acute infection. This may progress to the acute purulent stage and from there to the chronic purulent stage. The latter state may be maintained, or the infection may partially subside with the occurrence of hyperplasia of the mucosa and the formation of the pyogenic membrane found in chronic hyperplastic sinusitis. This membrane is thicker than normal, soggy and may undergo polypoid changes. Lavage in case of the last type may yield no pus, while the lymphatics continue to be clogged with infectious materials, and thereby enhance the chances of absorption and its consequences. Drs. Mullin and Ryder injected India ink into the antra of rabbits and traced out the lymphatics involved in absorption from it. They found that the antra are drained by the submaxillary, internal jugular and deep cervical glands, and from there into the lymphatic ducts, the great veins, the right side of the heart, into the lungs and the bronchial and mediastinal glands. Some drainage into the so-called "tonsil node" at the angle of the jaw may occur, and this is of importance in those cases where this gland remains enlarged after tonsillectomy.

The bronchial glands are divided into three groups:

(1) The peri-tracheo-bronchial glands, which are right and left in location and about the size of a large pea. They are in close relation with the trachea, bronchi, inferior vena cava, surface of the lung, the recurrent laryngeal and vagus nerves, and the azygous veins.

(2) The inter-tracheo-bronchial glands number 10 or 12, and are found more under the right than the left bronchus. They are below the bifurcation of the trachea, behind the pericardium and in front of the esophagus.

(3) The inter-bronchial glands occur at the bifurcations of the larger bronchi and are completely buried in the parenchyma of the lung. They are in intimate relation with the pulmonary artery and vein and may compress the former when enlarged.

The normal lymph flow in the lung is from the parenchyma to the hylum, except a small portion just beneath the pleura which is drained by the pleural lymphatics.

The upper lobe of the right lung contains the first and second interspace bronchial trunks, each of which in turn gives off an anterior and posterior division. In addition to these, we have, on the left side, a long branch which runs down into the lingual lip of the upper lobe. Just below the main stem bronchus to the upper lobe, the trunk to the middle lobe runs anteriorly. All branches to the lower lobes arise from the main stem bronchus, and, except for anterior and posterior divisions, have no special classification. This knowledge is of value in locating lesions, as shown by the X-ray, in the parenchyma of the lung.

The septa of the lungs are prolongations of the connective tissue of the pleura, extending down into the lung substance. They divide the lung into secondary lobules and are richly supplied with lymphatics. They act as effective barriers to the extension, by continuity, of pathologic processes characterized by exudations. Spread of the exudate through these septa occurs only when cavitation has taken place. This localized exudate explains the localized rales and "fans" which may be present in any lung inflammation accompanied by exudation, such as is the case in apical catarrh, the pneumonias, infarct, etc.

It seems important at this point to remember, as pointed out by Drs. Dunham and Skavlem, that the first reaction to the implantation of tubercle bacilli in the lungs of sensitive human beings is exudation. If large doses are given, the exudate will be of the P. M. N. type, due to the reaction of the tissues to the foreign protein. The P. M. N.'s give away in about forty-eight hours to the mononuclear elements, endothelial and giant cells. From here reparative changes may take place, such as fibrosis or calcification, or destructive changes with caseation, ulceration and cavitation may occur. From this, we see that in tuberculosis one lobule may be in a state of exudation, an older one caseation, another cavitation, while in the same lung we may find

fibrosis and calcification. This produces the characteristic mottling as found in X-ray plates of pulmonary tuberculosis.

The conditions mentioned as indirectly related to chronic sinus infections will be discussed here briefly, so that we can take up, as a group, and in detail, the ones resulting directly.

Dr. J. L. Morse, of Boston, states that chronic broncho-pneumonia in children is practically always tuberculous.

Unresolved Pneumonia. Pneumonia can occur at any time: in fact, it is a frequent occurrence to elicit a history of frequent attacks of pneumonia in the non-specific lung infections due to sinus lesions. One of my cases had a history of pneumonia six times and empyema twice. It is my belief, however, that these are acute intercurrent infections, occurring in a lung which readily lends itself to infections of any kind. Such a history, however, should always lead us to suspect the sinuses.

Lung Abscess. I have never seen a case of lung abscess which could be directly laid to sinus infection. However, with the ever-present post-nasal discharge and lung infection, it seems plausible to expect such a condition. The usual case of lung abscess is due directly to the aspiration of foreign materials, frequently after anesthetics, which, in the presence of lung infection, increases the possibilities of lung suppuration.

The diagnosis of lung abscess is usually not difficult in the presence of a history of sudden onset, cough, expectoration of large amounts of foul purulent sputum, together with the physical signs and X-ray. Bronchoscopy is a great aid in the diagnosis, as well as the treatment, of these cases, by direct drainage of the abscess. The physical findings and symptoms depend upon whether the abscess is superficial or deep, or whether full of pus or empty.

Empyema may be diffuse or encysted, and is usually the result of an intercurrent infection, such as the pneumonias. It does not differ in these cases from the ordinary case of pus in the pleural cavity due to other causes.

Bronchitis, Bronchiectasis and Asthma due to sinus infections have so many things in common that it seems wise to consider them as a group.

ETIOLOGY

It has been the experience of W. V. Mullin that the maxillary sinus is the sinus most frequently affected in these cases, and he accounts

for this by the presence of this sinus early after birth, being thus exposed to infection longer. He also suggests that the difficulties in proper drainage and the large area of lymphatics for absorption of bacteria and their products play a part. It is also the opinion of this observer that hyperplastic sinusitis is the most frequent cause of these lung infections. In my experience, the maxillary sinus on one or both sides has been infected and there has been present a purulent infection of one or more of the other sinuses with it. Usually the antra, ethmoids and sphenoids on one or both sides have been involved. I have never seen a case which could be traced to a frontal sinusitis alone.

Climate seems to play a rather large role in these infections, and this is probably due to the fact that sinus lesions are more prevalent in climates which are subject to sudden changes in temperature and barometric pressure.

Age plays little or no part other than the fact that the young are more frequently brought to our attention. Sex and heredity apparently play no part. The white race is nearly always the one affected, due to the wide nasal chambers and free drainage in noses of the negroid races. It has been stated that the under-privileged and rachitic child, who is living under insanitary conditions, is more prone to these lung lesions. However, it has been just the opposite in my experience, for all of my cases, except one, have been in educated and sanitary homes. Those children affected with adenoids, septal deformities and other causes of nasal obstruction, seem to be most often found with lung lesions associated with sinusitis.

The route of infection is probably either by inhalation or by lymphatic absorption, or by both. Aspiration probably plays the major part in most cases.

The types of bacteria found in the nasal discharge and the sputum are those found in the usual mixed infections of the upper respiratory tract. In the order of their frequency and in any combination we find the pneumococcus, micrococcus catarrhalis, *B. influenza*, Friedlander's bacillus, streptococcus, and staphylococcus aureus and albus. In my cases staphylococci and streptococci have most frequently been found.

SYMPTOMS

The history is, usually, that a nasal dis-

charge has been present from early life or even birth. Snoring, mouth breathing with post-nasal drippage, hawking, snuffing and expectoration have been present for a long time. Repeated chest examinations have been made and in spite of frequent negative sputum examinations, a diagnosis of tuberculosis is made. Many of these cases have had sanatorial treatment with little or no change in the lung condition. A history of inaptitude in school, and mental sluggishness, frequent attacks of aphonia, rheumatism, otitis media, and pneumonia can frequently be elicited.

Cough and expectoration with the symptoms of focal infection are nearly always present.

The cough may be periodic or continuous. It is worse at night and in early morning, and particularly troublesome in damp and cold weather. It is usually productive, and bubbling in type, and may come in paroxysms, simulating whooping-cough.

The sputum may be slight, but a profuse, purulent type is the rule. In adults the sputum is frequently foul odored, due to the bronchiectasis which is nearly always present. Hemoptysis is not uncommon.

An afternoon rise in temperature is often present, but this is by no means a constant occurrence. Fatigue is present early, and lassitude may give the impression of a lazy child. General malaise and a rapid pulse are frequent symptoms, while loss of weight may or may not occur. Asthmatic symptoms, either as attacks or in continuous wheezing and shortness of breath, may occur, or even predominate, the picture.

PHYSICAL SIGNS

The general appearance of the patient may be that of a well nourished person of normal weight. Such patients are, however, usually rather pale and anemic, with rapid respirations and early fatigue on exertion. The so-called "adenoid" expression with the high arched palate and broad nasal bridge may be present.

The nasal signs depend upon which of the sinuses are infected and the nature of the lesion. Free pus may be seen as it comes over or beneath the middle turbinate, indicating the group of cells involved. The whole nasal chamber may be filled with pus, which may vary from a thick, stringy mucopurulent type to one of thick pus. The mucosa of the nose may be in a state of hypertrophy, turgescence

or atrophy with crust formation. The discharge may be foul odored, and polypi are frequently noted. On the other hand, there may be little or no pus in the nasal chambers. The mucous membrane may be hypertrophied or the nose may be occluded by a turgescent mucosa. This picture is often present in the hyperplastic type of sinusitis or may be due to the failure of the sinus to discharge into the nose regularly. Suction will often bring pus into evidence in this last type of case, while direct inspection of the antral wall with the naso-pharyngoscope may reveal the former. Lavage in the hyperplastic type may produce no pus.

Transillumination may or may not show marked obscurations, and too much reliance should not be placed in this method of diagnosis.

The X-ray usually shows up any involvement that might be present in the sinus but a cloudy sinus does not always mean that we will find pus or that the sinus is the cause of the prevailing chest condition. Dr. Granger has added greatly to the X-ray diagnosis of sphenoid disease by his so-called "Granger line."

The nasopharynx may show some discharge and its lymphoid tissue may be hypertrophied and extend well down on its lateral walls, posterior to the tonsil fossa. The tonsils have usually been removed in these cases, and, where present, are usually infected. The glands along the cervical chain are readily palpated in most instances.

The larynx and trachea show chronic inflammatory changes and frequently there is much thickening of the vocal chords.

Chest Signs: The chest signs depend upon whether the case is one of simple bronchitis with apical catarrh, or one of diffuse purulent bronchitis with bronchiectasis, asthma or emphysema.

With a slight infiltration of the apex of the lung, a localized area of persistent, fine rales may be found, usually without alteration in percussion note or voice sounds.

In uncomplicated bronchitis there are usually no changes in the voice sounds or percussion note, unless there is some thickening of the pleura. The breath sounds are broncho-vesicular in type, and the rales are usually bronchial and vary in moisture, size and distribution. The bases of the lung are usually most involved, and their expansion may be very slight.

Bronchiectasis merely adds the signs of cavitation to those already described for bronchitis. These bronchiectases may be variable as to size, shape and number. The various stages of filling found in these cavities give signs of cavitation in varying stages. Frequently emphysema may be so prevalent that all other signs may be covered by the tympanitic note on percussion and the emphysematous breathing.

Asthma adds little to the signs of bronchitis, other than asthmatic breathing during the attack.

The X-ray usually shows a diffused peribronchial infiltration with thickening of the trunks throughout both lungs. This condition is progressively more marked from the apex, downward to the base. The trunks are not usually tortuous, but radiate straight from the hilum. In bronchiectasis, fibrous tissue, arranged in rings, presents a characteristic picture of so-called "ringlets." There may be areas of consolidation, which are more frequently located along the main stem bronchi to the lower lobes, and the fuzziness from there may extend to the periphery.

DIFFERENTIAL DIAGNOSIS

Whenever we are confronted with the symptoms of focal infection, with cough and expectoration, which may be blood tinged, we are justified in suspecting tuberculosis. However, there are certain chest conditions due to sinus infection which have the same appearances. This is particularly true of apical catarrh with its presence of a few localized rales at one or both apices, and in dense hilus shadows found in children. In tuberculosis, however, we find, on X-ray, the characteristic mottled appearance, due to different stages of the disease in different lobules, as discussed under pathological anatomy.

These non-specific cases are found to be in a state of general health entirely too good for all the chest condition to be due to tuberculosis. With this large amount of pathology, a case of tuberculosis would, in nearly all cases, show the tubercle bacillus in the sputum.

While in many cases the distribution closely approaches that of tuberculosis, in bronchitis, the heaviest infiltration is usually at the base of the lung, as demonstrated by X-ray and physical examination.

The presence of asthmatic symptoms should

lead us to suspect a non-specific focal infection as the etiologic factor.

In children a negative tuberculin test is of great value, but a positive one is of no significance.

There are certain cases in which a sinusitis is superimposed on tuberculosis, and these add greatly to the difficulty of diagnosis. However, sputum analysis and carefully interpreted X-rays will usually lead to a correct diagnosis.

PROGNOSIS

The prognosis as to life is good if treatment is instituted early and the sinus lesion thoroughly relieved. These cases, however, are liable to intercurrent infection, or the operative measures may lead to septicemia, pneumonia, and death. At the present writing, one of my cases is critically ill with pyelitis and threatened septicemia a month after the ethmoids were radically removed. Lung abscess and endocarditis may cause an early death.

Convalescence is of long standing, particularly when bronchiectasis is present, even after a thorough removal of the sinus infection.

TREATMENT

Prophylaxis is most urgent, for, by the early diagnosis and treatment of sinus lesions, this condition can be eradicated to a large extent.

The general treatment of these cases is largely constructive, and should follow closely that outlined for tuberculosis. It seems, however, that these cases can be taken care of very well at home, and sanatorial treatment is not as necessary as in tuberculosis.

Fresh air, sunshine, high caloric diet and general hygienic measures are of importance as adjuncts to rest, which is the most effective therapeutic measure at our disposal. Rest should be in bed and consume most of the day, well into convalescence.

A moderate and dry climate is of value, and should be insisted upon in many cases after thorough surgical attention has been paid to the sinuses.

Vaccines are often of value and should be tried in all cases. The cultures are taken from both nose and sputum and grown immediately, before cooling has taken place.

There is seldom any indication to control the cough, except in cases where rest is interfered with. The cough medicine of choice is

that which disturbs digestion least and is non-habit forming. Potassium iodide is of value as an alterative and expectorant, while tonics, such as iron, quinine, and strychnine stimulate the appetite. Strychnine alone tends to stimulate respiration and muscle tone, and thus combats the lassitude. Compound tincture of benzoin as an inhalation may add to the patient's comfort. The salicylates are of some value and in cases of calcium deficiency, the calcium salts are adjuncts to diets high in calcium content.

Surgical intervention is nearly always indicated in these cases, and should be directed to the eradication of all infection and infectious material from the nasal sinuses. However, the aromatic oils and anti-septic solutions as sprays and douches, make the patient more comfortable and keep the nasal chambers clean. These patients tolerate mercurochrome as a spray better than most nasal cases.

Lavage of the antra may be tried, but as a rule something more radical has to be done in these chronic cases. The intra-nasal operation should be tried but, as polyps are usually present, it has been my experience that nothing short of some procedure such as the Caldwell-Luc operation will suffice.

Any septal deformity, obstructing drainage or interfering with treatment, should be corrected.

The ethmoiditis may be encysted, and removal of the middle turbinate and drainage of the cells involved may suffice, but total exenteration by the nasal route is usually necessary.

The anterior wall of the sphenoid should be removed when necessary, which is the case in most cases where the ethmoids are involved.

If purulent frontal sinusitis is a factor, the infundibulum should be enlarged by one of the intra-nasal operations. If bone necrosis and polyps are present, however, something comparable to the modified Killian operation is indicated.

Due to the dangers of lung abscess, cardiac decompensation, and pneumonia in these chest conditions, it has been my custom to do all surgery under local anaesthesia. With nerve blocking, any of the sinuses can be operated upon with little disturbance to the patient, even in children. Scopolamine and morphia before operation is of great help in controlling the patient.

I have intentionally avoided a detailed enumeration of the available drugs and various

methods of treatment, for each case is a "case unto itself," and all its aspects should be considered before any plan of procedure is decided upon.

CONCLUSIONS

1. There are no characteristic symptoms, other than those relating to the sinus lesion, which differentiate this group of cases from tuberculosis. The X-ray is our most valuable diagnostic measure, but must be correlated with all clinical and laboratory data available to avoid mistaken diagnoses.

2. Cases of tuberculosis which are in the earliest stage, with the exudate limited to a single lobule, cannot often be distinguished from slight apical catarrhs. It is frequently impossible to differentiate a case of hilus tuberculosis in children, where only dense hilus shadows without symptoms of tuberculosis occur, from enlarged hilus glands due to sinus infection.

3. Cases presenting histories of repeated attacks of pneumonia should be suspected of sinus infection as an etiologic factor.

4. The treatment is that for tuberculosis, supplemented by surgical measures sufficiently radical to relieve the sinus of all infection.

5. Wherever feasible, any surgery done in these cases should be performed under local anaesthesia.

6. Early diagnosis and thorough sinus surgery will prevent these cases from occurring and usually relieve the chest condition.

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SOME CONSIDERATIONS IN THE DIAGNOSIS, TREATMENT AND OUT-COME OF GALL-BLADDER DISEASE.*

By J. RUSSELL VERBRYCKE, Jr., M. D., Washington, D. C.

This paper does not attempt to be a complete dissertation upon the very fascinating subject of gall-bladder disease, but will, to keep within time limits, consider some practical points and some of the writer's ideas which are based upon fairly extensive observation.

If Mrs. Smith comes complaining of attacks of excruciating pains in the right hypochondrium or epigastrium, referred to the shoulder blade, perhaps accompanied by vomiting, and particularly if we see her in one of the attacks, we can all be sure that she has gall-stone colic, even though the attack may be due to a plug of mucus in the tube and not a stone.

But if Mrs. Brown comes complaining of gas, constipation, headaches or other symptoms, and so-called indigestion, perhaps only if she eats certain things, how are we to determine if she has functional dyspepsia, gall-bladder disease, or something else, and what shall we advise her to do?

Let us assume that Mrs. Brown has biliary infection. She is probably 6 to 10 years younger than Mrs. Smith, not necessarily in actual age but in the course of disease, since we know that the average gall-bladder before giving symptoms sufficient to urge operation has probably been diseased and that the pathology has been gradually getting worse for an average of nearly ten years. If Mrs. Brown and Mrs. Smith compare notes as to their symptoms, which they surely will do if they know each other, they will note no similarity unless Mrs. Smith remembers that before her terrible agonizing attacks started she had "indigestion" somewhat similar to Mrs. Brown's for some years.

If Mrs. Brown is to have an early diagnosis and treatment, the fact that the symptoms of early gall-bladder disease, while possibly suggestive, are not usually diagnostic, makes it necessary that her physician send her to the gastro-enterologist or diagnostic clinic for objective methods of diagnosis, for there are now methods of precision available. The specialist then makes a complete physical examination, examines the blood, urine, stomach

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contents, stool, and traces the barium meal through the entire gastro-intestinal tract for the purpose of eliminating or finding other conditions which might simulate or accompany a diseased gall-bladder. At this point a diagnosis can be made only by exclusion, and until the past several years this was our limit, but now we have the Graham gall-bladder X-ray, one of the greatest medical advances of the decade. By it the gall-bladder is made visible and its anatomy and physiology made clear. You are all probably familiar with the Graham test by this time, but since our series at Garfield Hospital is one of the largest in the country, numbering at present about 800 cases, it may be interesting to present a few of the results and our conclusions. Pictures are made five, eight and twenty-four hours after the intravenous injection of sodium tetraiodophthalein. Normally the gall-bladder shadow shows fairly large and distinctly five hours after the injection. Three hours later it should be darker and smaller as two of the gall-bladder functions, of abstraction of water and contraction, are brought into play. At the twenty-four hour period the shadow should be quite dark and much smaller, as the contents are concentrated about twenty times.

Complete absence of gall-bladder shadow is considered absolute evidence of disease, provided the liver is normally functioning, and has so proven in nearly 100 per cent of the cases. So, too, the presence of stones, which can be demonstrated many times more frequently than by plain X-ray, may be considered absolutely positive evidence of disease.

Other findings of importance are poor density of the shadow, caused by either inadequate filling, poor absorption of water, or thick-walled gall-bladder; absence of change in size at different examinations, showing inelasticity; deformities of shape; marked variations in size from an accepted normal, etc. Some of the variations from normal functions are quite marked, but others fade out into the questionable zone, so that it is quite surprising that the interpretation of the films results in the high proportion of 93 per cent to 94 per cent accuracy in proven cases. Statistics from Boston, St. Louis and Rochester show approximately like figures. So far as I know, there are few if any tests in medicine which give such a degree of accuracy. Think of it, if cholecystograms of 100 patients were placed before any one experienced in reading them,

without the patient being seen or a question asked, between 90 and 100 per cent can be diagnosed correctly.

During 1926 I removed 32 gall-bladders. There was only one error of the Graham test in this group, 97 per cent correct.

To return, then, to Mrs. Brown who has been positively diagnosed as having biliary disease by a consideration of her symptoms, exclusion of other conditions, and a positive Graham test. There are certain questions that Mrs. Brown wants to ask. Nearly all of the patients ask them, so that they will be considered in order, and I will give the answers that I make.

Mrs. Brown: Do you know what the trouble is Doctor?

Answer: You have chronic inflammation of the gall-bladder.

Mrs. Brown: Does that mean gall-stones?

Answer: You may or may not have gall-stones. They don't always show even in the Graham X-ray, but, if they are present, they are only an incident in the course of gall-bladder disease. They are not important in themselves unless they produce gall-stone colic, and even this can be produced by a plug of mucus or swelling of the duct without a stone.

Mrs. Brown: Does this mean an operation?

Answer: I heartily agree with the epigram of Dr. Stuart McGuire who says, "Every patient with gall-bladder disease will eventually have to be operated upon if she lives long enough." It is rare that the gall-bladder presents a surgical emergency, so there is some latitude as to the choice of time. But if it has to be done at some time, it is far preferable to do it early, not only for the relief from symptoms and the avoidance of the possibility of complications, but because early operation is safer and followed by more perfect results.

Mrs. Brown: What will happen if I am not operated upon?

Answer: That is difficult to say. You may only go on having dyspepsia or pain which should tend to get worse and more continuous. But there are very definite chances that you run of serious complications, such as inflammation of the pancreas, progressive hepatitis, blocked common duct and cholangitis, any one of which is a very serious matter, and the operation for the complication, while far more serious than simple operation, is frequently

only a makeshift to save life and not a curative one.

Mrs. Brown: What is done at operation?

Answer: Usually the gall-bladder is removed entirely. It used to be drained, but experience taught that only 50 per cent of the drainage cases remained well.

Mrs. Brown: But Doctor, how can one live without a gall-bladder?

Answer: The gall-bladder is an organ which, while it has functions, is not necessary for either life or health. Patients feel just as well and don't know the difference whether they have a gall-bladder or not. As a matter of fact, some animals have gall-bladders and some do not. A mouse has no gall-bladder, the rat has. The steer has one but the reindeer not. One of the functions of the gall-bladder is to act as a temporary reservoir, but it holds but a fraction of the amount which is secreted by the liver. To hold more it has the power of concentrating, by the absorption of about 20 parts of water. Another function is to act as a pressure regulator for the bile tract, but experiments have shown that while normally it takes an average pressure of approximately 400 m.m. to open the valve and to allow the bile to enter the intestines, after the gall-bladder is removed, pressure falls in the ducts so that only about $\frac{1}{4}$ of the amount is necessary to open the valve. Consequently, there is no need for it as a pressure regulator.

Mrs. Brown: Is the removal of the gall-bladder a serious operation?

Answer: The seriousness of any operation depends upon several factors, such as the condition of the patient, the ability of the operator, proper preparation for operation, the choice of time for operation, etc., but the patient's chance can be figured out from the law of averages.

Those who play golf know that there is a so-called par or average perfect score for the course, say, 70 strokes. There are a few golfers who can consistently make close to par and every once in a while, with a certain amount of luck and favoring conditions, one of these may do much better than par or average perfect. So, with operations. I like to figure out par as based on average results. Par for gall-bladder removal is probably 96 out of 100, that is 4 deaths per 100. The average mortality throughout the country is probably 8 per cent. Dr. Lyon recently stated that an

analysis of his cases, operated upon by the best surgeons in Philadelphia, showed a 10 per cent mortality. On the other hand, there are some operators who have a record better than par. The mortality at the Mayo Clinic and several other places is only $1\frac{1}{2}$ per cent. My own series since I have had a death now totals 72 cases. We can in any event say that operation for the relief of the condition is not nearly as risky as is the disease itself.

Mrs. Brown: A friend of mine was treated by some doctor who had her swallow a little rubber tube and injected Epsom salts. Can't I be treated that way and be saved an operation?

Answer: You refer to the Lyon biliary drainage. It was based upon the theory that Epsom salts applied directly to the duodenum caused the muscle at the outlet of the bile duct to relax and the gall-bladder to empty. It is true that there is a profuse flow of bile following this treatment, but it has not been conclusively proven that the gall-bladder itself empties. Furthermore, even if it did empty, it could not be expected to effect a cure, since it is usually the wall of the gall-bladder that is diseased, and drainage of the bile from inside could not be expected to help much. Furthermore, if surgical drainage for several weeks continuously fail to cure more than half of the cases, intermittent drainage for an hour or so at a time could not be expected to accomplish as much. Practically, it has worked out this way in my experience. After trying out the medical drainage in about 100 cases, I have found that, while there were a few quite remarkable reliefs, in a majority operation was finally required and both time and money were lost, so that we have given it up except as a poor second choice.

Mrs. Brown: I am almost satisfied, but I must ask another question. You say that I don't run so very much risk from the operation, and that no other treatment is advisable. How much chance have I of being well after the operation?

Answer: There are only about 5 per cent failures from a properly chosen and well-performed gall-bladder operation. There are some others who are not completely cured, especially those who have had the disease for a long time before operation, but the majority are absolutely well after operation. Even constipation, colitis and other conditions which the patient may have with the cholecystitis

are relieved in 60 per cent of the cases without further treatment.

Mrs. Brown might ask other questions, such as whether a gall stone could be dissolved, why a friend of hers who took Mayer's Gall Stone Remedy passed a lot of stones, etc., but we will assume that she is satisfied and I hope that I have convinced her.

In conclusion, I will stress some of the factors that make for safer and better gall-bladder operations:

1. Early operations.
2. Choice of time for the operation, and the avoidance of operating during an acute infection of any kind, if possible.
3. The general condition of the patient.
4. The ability of the operator to operate reasonably quickly, without undue traumatism and with technical accuracy.
5. A good operating team, which includes assistants and nurses who are used to the operator's methods.
6. A good anesthetist and the choice of the best anesthetic.
7. Careful preparations for the operation, which can make fairly safe risks out of many otherwise poor risks. I use mixed vaccine of pneumococcus, streptococcus, staphylococcus and colon bacillus as a routine several days before the operation, and feel that the incidence of pneumonia and wound infections are reduced to a minimum.
8. Careful and intelligent post-operative treatment looking toward the prevention or relief of complications.
9. Certain points of technique, of which I shall only mention the closure without drainage, as advocated by Willis, whenever it is felt to be safe.

Let me repeat, in closing, that gall-bladder disease can be proven with a high degree of accuracy by the Graham X-ray; that, once proven, the thing to urge is the operation early, after proper preparations, and under as ideal conditions as possible.

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RECOGNITION AND VALUATION OF CARDIAC SYMPTOMS AND SIGNS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.

By B. H. MARTIN, M. D., Richmond, Va.

The ability to recognize is a gift and virtue much to be coveted and sought after in every

phase of human endeavor and activity. It is an art, if possessed by the physician, which will endow him with marked advantages over his fellows. But all of us can, by careful and persistent observation and untiring effort, acquire a chronological order of signs and symptoms which will be of incalculable help to us and a great advantage to our patients.

Before enumerating some of the most valuable signs and symptoms of cardiac derangement, I would like to say that a physician should know his patient very thoroughly as to his physical and mental relations, and realize that in this advanced day of thought and instruments of accuracy and precision the human equation has always to be reckoned with. There are a number of instrumental methods of examination, among them the electrocardiograph and the roentgen examination, the latter being the most valuable procedure we now possess for determining the size and position of the heart. In examination of the vast majority of patients, the diagnosis can be made independently of instrumental methods. It must not be inferred from this that graphic records can be dispensed with, for the power to diagnose a great many cases comes through the information thus obtained. It is not necessary for the physician himself to take records, but he must be familiar with the interpretation in order that he may appreciate and apply results. The value of all these things depends upon the doctor's ability to recognize the very first evidence of heart failure and the proper measures instituted to minimize the destructive effects.

With increased interest of the people being aroused over tuberculosis, cancer and pernicious anemia, we overlook the fact shown by statistics that some form of heart disease is more often put down as cause of death than any other single disease. Therefore, it behooves the general practitioner, who is the logical man, to be so well equipped and acquainted with the early manifestations of carditis, in any of its forms, that we will be able to recognize it. In children, in my judgment, a great deal of it arises, and is never properly diagnosed or treated. The child grows into adolescence and frequently into maturity, when, to our utter chagrin, we find them with a bad cardiac lesion, which shortens their usefulness and longevity. The mother will probably remind us of some febrile condition in early childhood from which the child never fully re-

covered. The mother will tell us that the child tired easily, was irritable, whiny, and complained of vague pains in the body, and that we had agreed with her that they were growing pains, which we thought the child would out-grow. The best and safest way to acquire this information is by regular and stated examinations of your clientele and with a good system of well-kept records we can make use of these facts to reduce the number of cardiac cases. It is just here our greatest work is to be done. After we have found this information, we should be very certain of our position and then should give such directions as—rest over long periods, proper food and elimination, insisting and demanding cooperation on the part of the mother or nurse. So often an easy going doctor allows the family to persuade him to relinquish some of his directions and the patient is allowed too much liberty. In the end, great harm results to the patient.

In listing the symptoms of cardiac derangement, one of the most valuable aids will be a carefully taken history, with due appreciation of the patient's statements, aspects, sensations, condition of other organs, past history, and the field of cardiac response. The earliest and most valuable information regarding the efficiency of the heart is revealed by the patient's sensation in response to effort, and his consciousness of the unusual manner in which the heart may beat. From a due appreciation of the patient's sensations the nature of the trouble will often be revealed; moreover, in many patients the action of the heart may become abnormal at intermittent periods, so that we have to depend on the patient's description of his sensation for the knowledge of his trouble. Heart failure resolves itself into the question of the amount of reserve force available and, consequently, it is at this junction we begin to find out that amount. Therefore, the facts that produce the first signs of discomfort need the most detailed inquiry.

Among the symptoms, we may note breathlessness or air hunger, sense of suffocation, inability to stop breathing, quiet rapid breathing free from distress, continuous labored breathing, labored breathing brought on by exertion, attacks of cardiac asthma, Cheyne-Stokes respiration, pulmonary hemorrhage, acute suffocation, edema of the lungs, enlarged liver, swollen feet, puffiness around the ankles, dizziness, vertigo, arrhythmia, hypertension, degree of exertion which can be undertaken,

lividity of the face and lips, weakness, sensation of constriction in the chest, a feeling of weight in the limbs, sleeplessness, particularly in the aged, and ascites. An opinion or diagnosis should never be based on the presence of one sign alone, however abnormal that may be. Any sign which is indicative of heart failure is always accompanied by other symptoms. The converse is equally true, that any sign unaccompanied by abnormal phenomena may be taken to be of little or no importance or significance, so far as the functional efficiency of the heart is concerned.

You have probably noticed that the writer has almost neglected to refer to cardiac murmurs and hypertension, for, in the past, great stress has been laid on these symptoms and they are of undoubted value. My aim, however, is to emphasize the fact that the human organism is composed of a commonwealth of countless millions of cells, vital units, bound together in a harmoniously working whole. Therefore, any disease that affects the human body in any locality or organ is likely to produce effect on or derangement of the others, by means of toxins either of bacterial or poisonous origin. Such diseases as tonsillitis, influenza, pneumonia, diphtheria, scarlet fever, typhoid fever, rheumatism, malaria, and many others have a very marked effect on the heart because of the toxins generated in these diseases. Therefore, it is the writer's custom to keep the patients suffering with any of the above diseases in bed, so as to restrict their exercise and get them to rightly appreciate what a proper convalescence means following these diseases, thereby decreasing heart lesions.

There is no profession where one has as many opportunities for service to humanity as the true physician. The doctor is with them when they make their advent, and is constantly in attendance and looking out for them until they pass the dark shadow of death; therefore, as physicians we might take this as our motto:

"I would be true for there are those who trust me,
I would be pure for there are those who care,
I would be strong for there is much to suffer,
I would be brave for there is much to dare,
I would be a friend to all the poor and friendless,
I would be giver and forget the gift,
I would be humble for I know my weakness,
I would look up and love and live and lift."

5510 Grove Avenue.

WHY YOUNG PHYSICIANS ARE NOT LOCATING IN THE COUNTRY.*

By W. W. KERNS, M. D., Bloxom, Va.

Realizing that there are very few diseases upon which I could write that would be of much interest to you, I was almost at a loss as to what topic I should discuss, when Dr. Stubbs asked me to read a paper at this time. But, in selecting this subject, "Why Young Physicians Are Not Locating in the Country", and considering my age and experience, I feel that I can give you some real facts upon which to ponder. Ten years ago, I would not have dared to read this paper before any Medical Association, on account of the criticism I would have received. But, as it is, I am fast approaching that age when I will no longer be able to continue my work as a country doctor, and I feel that if I can say or do anything to help the young physicians who desire to locate in the country, and the country people as a whole, I will be amply rewarded, no matter how much I may be censured.

I have practiced medicine in the country thirty years, have never changed my location, and consider myself an average country physician. Starting out with a horse and road-cart, I am now able to ride in a Ford coupe.

During the time, I have sent to various hospitals:

Six cases of tubular pregnancy.

Twenty cases of strangulated hernia.

Forty-three cases of fibroid tumors of the uterus.

Twenty cases of cystic tumors of the uterus.

Sixty-one cases of cancer of internal organs.

Thirty-six cases of some form of kidney trouble.

Thirty-two cases of gall-stones.

Two hundred and twenty cases of some form of ovarian or tubular trouble.

Three hundred and twelve cases of appendicitis.

The above list makes a total of 750 of what I term major operative cases, for which the surgeon received from \$50 to \$500 a piece for each operation, I will put it on an average of \$100 a case, making a total of \$75,000 for this work.

How much did I get out of these cases?

Called up, as a usual thing, at midnight, driving on an average of five miles each way, examining the patient, diagnosing the trou-

ble as best I could, trying to soothe and comfort the family, rushing the patient off to the hospital 750 times at \$5.00 a night visit, making a total of \$3,750.00 less 750 telephone messages to the hospital at 50 cents each—\$375.00, less one-half my fee (a fair average) that I never receive because, by the time the patient returns home he has spent all he had and all he can borrow, I have left a grand total of \$1,687.50 against \$75,000.00 that the surgeons received.

In addition to the above, there are hundreds of minor operative cases, such as tonsillectomies, eye, nose, ear, throat, rectal and skin troubles that my patients consult me about getting my advice as to what specialist to put themselves under, and for all of which I receive only thanks for my trouble and counsel!

If we country doctors even hint anything about splitting fees, the surgeon and specialist will throw up their hands and hurl back at us "Medical Ethics", and say, "All you country doctors do it to diagnose the cases and send them to us; we are the ones who do the work, and should receive the pay." What are they sending the country doctor in return? May be a letter of condolence to our widows and orphans, and a write-up in the obituary column of our medical journal when we die.

And, besides this, in steps the State with the County Health Unit to take a whack at us, vaccinating children and every one else for 10 cents, for which we get \$1.00, using toxin-antitoxin for 50 cents for which we get \$3.00, using typhoid fever antitoxin from 60 cents to \$1.00 for which we get \$5.00, holding tonsil clinics and charging \$10.00 for half doing the job. Lectures are given to midwives by county nurses, teaching negro women (unknowingly) how to produce abortion.

No negro midwife should be taught the anatomy of the genital organs. I have had twenty-seven abortions within the past seven months. The majority of these cases had consulted some negro granny, who told them how to do the work.

How about the county health physicians? Do they get up at midnight, drive eight to ten miles to relieve the suffering of some poor woman or child? Not by a long shot.

And to these health physicians, we country doctors must make a report every Saturday for every thing that comes under our observation during the week—from a tooth ache to the delivery of a bouncing baby.

*Read before the Walter Reed Medical Society, at Yorktown, Va., May 26, 1927.

Now don't think that we can get off by just mentioning this baby. We must give the exact moment it was born, and full family history. Did you use drops in its eyes? Failing to do this, you may be sure we will get a jacking from headquarters in Richmond. And if we should be called to this baby a few days after birth, arriving just in time to see it draw its last breath, we must write a death certificate for it, giving date of birth, full family history, the date of death, and the exact cause of same. Right here is where they make me lie,—or do some tall guessing, for, if I fail to give the exact cause of death, I get another bawling out from headquarters in Richmond.

I trust you will not think I am sore with the surgeon, specialist, or health department, for God knows I love you all, and why shouldn't I? We received our medical degrees, passed the state medical board, and served our internship all alike, but I, unfortunately, located in the country.

Today young doctors are not locating in the country, and I can't blame them; for, under the present conditions, they are up against state medicine and a decent starvation.

State medicine is coming, and that—fast.

I see but one remedy, one way to induce the young physician to locate in the country, and that is for the city surgeon and specialist to take him in partnership with them! and for the state to let the Health Unit of each county be composed of every reputable physician in that county, each to have his special work to do and receive the pay allotted to that work. This would assure the patient, who goes to the surgeon and specialist, the very best treatment and attention, at a less cost to the patient; it would bring the physicians in each county closer together, causing them to co-operate and have a better feeling one towards another and towards those who are at the head of the health department in Richmond; and this is that for which we all should strive.

This is a day of preventive medicine, and, in order to make it a success, we must all work hand in hand. At the same time, the country doctor must have more than an ordinary living to keep him there.

I am sure I shall be severely criticized for reading this paper, especially by the "High Ups". To those who censure, I have no apologies to make whatever.

I have not written this paper for my own

benefit, but for the good of those who are to follow.

Think of the hundreds of country physicians who have passed away, leaving behind homeless and penniless widows and orphans. You knew them and I knew them. They were at the beck and call of every man, woman and child within the radius of their practice. Money or no money, no angel in Heaven should have a brighter crown than those noble men; but how much brighter life would have been to them and their families had they been co-partners with the surgeons and specialists!

A CONSIDERATION OF SUMMER DIARRHEA IN INFANCY.*

By HOWARD URBACH, M. D., Richmond, Va.
Associate Professor in Pediatrics, Medical College of Virginia.

What is summer diarrhea? Within the scope of this paper, we shall define it as "A condition in which there are seven or more loose stools each twenty-four hours in the breast fed, and three or more loose stools in the bottle fed." In either case there is evidence of indigestion.

CLASSIFICATION OF TYPES

Infectious	{	Shigi
		Flexner
Bacillary	{	Amoebic
Non-Infectious	{	Acute Intestinal Intoxication
		Protein
Non-Bacillary	{	Carbohydrate

INFECTIOUS OR BACILLARY GROUP

This group is less frequent in the infant but has a higher mortality.

Symptoms: These are sudden onset, occasional vomiting, always temperature (100-104), ten to twenty stools with marked straining the first twenty-four hours. After this, the stools increase to an average of thirty in twenty-four hours (ranging from fifteen to forty-eight), until the quiescent period on or about the fifth to tenth day of illness. During the first twenty-four hours mucus is present. By the thirty-sixth to the forty-eighth hour, mucus streaked with blood is present. By the fourth or fifth day we have mucus, blood and pus. In this group we do not get the marked dehydration as in some of the other forms of diarrhea.

Diagnosis: Diagnosis of this particular type is a bacteriological procedure. The stool in all diarrheas, accompanied with blood and pus,

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should be cultured. A microscopic examination of the stools should be made at the bedside; otherwise, an amoebic infection may be overlooked.

Treatment: Diet, while important, is apparently not as important in treating this group as the group next to be considered. We should give principally, cooked cereals, zwieback, fat-free broths, well-diluted fruit juices (orange, lime, lemon), fermented lactic acid or protein milk.

Medication: B. A. Culture, drams 1, may be given in fruit juices. The following formula is quite acceptable to most patients,—Water, 1 pt., Orange Juice, 2 ozs., Sugar (preferably Lactose) to season. M.—Sig.: Two ounces every two hours with B. A. Culture, drams 1.

Bismuth emetin iodide, grains three—three times daily (short of nausea) is probably the most useful of the drugs for the amoebic type.

For the Flexner or Shiga types, Flexner's serum offers the greatest hope, 30 c.c. given preferably intravenously, and repeated in twelve hours; then every twenty-four to forty-eight hours until there is evidence of improvement. In view of the fact that it takes three to seven days for a proper typing of the infecting organism, I am convinced that we are justified in using Flexner's serum in all cases of diarrhea when blood appears in considerable quantity within thirty-six hours after onset, even if, after careful search at the bedside, microscopic examination fails to reveal the presence of amoeba.

SECOND GROUP OR NON-INFECTIOUS TYPE

ACUTE GASTRO-INTESTINAL INTOXICATION.—

In this type the onset is sudden, with frequent vomiting, marked tympany, temperature 101-106 degrees, severe toxemia, drowsiness, twelve to thirty loose stools (foul smelling, putrefactive at first, then practically odorless) and marked dehydration.

Treatment: Withhold all nourishment for twenty-four hours. If after the first five or six stools there is much tympany and marked odor to stools, a dose of castor oil is indicated. During the first twenty-four hours the patient is allowed the following mixture in small quantities frequently:—Water, 1 qt., Soda, 1 teaspoonful, Lactose, 1 ounce.

This mixture is quite acceptable to patients. It tends to allay gastric irritation, aids in neu-

tralizing acetone bodies already present, retards the breaking down of the fat cells, hence inhibits to some extent the formation of additional acetone bodies.

Diet: Very weak boiled skimmed milk with cereal diluent formula, increased in quantity and quality as patient's condition warrants. When the watery stools have subsided, and a stool with some body, or a pasty consistency, is present, cooked cereals, zwieback, or toast from stale bread are allowed.

PROTEIN DIARRHEA.—In this condition "Some Something" happens to baby's metabolism whereby it is unable to take care of the formula with normal percentage of protein. In this type the stools are not as frequent as in other types nor are they as liquid, but the odor is of a distinct putrefaction, and they occasionally may excoriate the buttock. There is little or no green color, being more frequently a brown color.

Very rarely is medicine indicated. A diet high in carbohydrate will take care of the infant receiving a milk diet only. This may be accomplished by substituting whey and adding sugar sufficient to bring the mixture up to 8 per cent carbohydrate. Whey made from whole milk gives a lower percentage of protein (0.86 per cent), but a higher percentage of fat (0.96 as against .04). With infants ten to twelve months of age, starches are gradually added.

CARBOHYDRATE DIARRHEA.—This is by far the most frequent type. Here, again, "Some Something" goes wrong with baby's metabolism, whereby it is unable to take care of milk formula with the usual percentage of carbohydrate. Presumably a change occurs in the intestinal flora, just the reverse of the protein, when a putrefactive organism causes a fermentative type of organism. It is a well-established fact that when sugar is fermented by the action of bacteria, either volatile or non-volatile acids, or both, are formed—the former, acetic, butyric and formic; the latter, lactic. Free acetic acid has been recovered from the stools of babies ill with carbohydrate diarrhea. This acid within itself is quite capable of increasing peristalsis or injuring the intestinal mucosa.

In this type of diarrhea the stools are liquid, frequent (seven to ten in twenty-four hours), and, by reason of their acidity, excoriate the buttocks. There is no evidence of putrefaction,

but there is nearly always a distinct acid or fermentative odor with green color.

If these statements are true, it is reasonable to assume that in order to effect a cure, all that is necessary is to change the intestinal flora. This may be accomplished by the use of protein milk. Until the introduction by American manufacturers of protein milk in powder form, the preparation of this food in many homes was impractical, and in many instances impossible, due to its difficulty of preparation. With the powdered protein milk, the most ignorant mother should be able to prepare it. Ten packed level tablespoonfuls of the milk to one quart of water gives the same percentage as the original formula of Finkelstein (Eiweissmilk)—fat, 3; sugar 1.8; protein 3.75. The percentage of powdered protein when properly diluted is fat, 2.25; sugar, 2; protein, 3.16.

Another method by which approximately the same percentage is obtained is by the use of calcium caseinate, using $\frac{1}{3}$ to $\frac{2}{3}$ of an ounce to the quart of milk formula, which is quite suitable to those babies that object to sour milk or regurgitate. I find that the stools return to normal more readily on the powdered protein milk. After the stools do not exceed three in twenty-four hours, and give evidence of becoming formed or of considerable body, the baby is ready for a gradual substitution of protein milk to the previous formula.

GENERAL CONSIDERATION OF TREATMENT OF SUMMER DIARRHEA

In addition to treatment mentioned in discussing each type separately, I desire to call attention to the following, which at some time during the illness may be useful, and at times may be life-saving measures, regardless of the type.

Colonic Irrigation:—That great physician and teacher, the late L. Emmett Holt, is credited with making the statement that "No case of summer diarrhea should be treated without at least one colonic irrigation. If it does good, repeat it. If it does not do good, do not repeat it." While the tendency of recent years has been toward discontinuing, or at least diminishing the number of colonic irrigations, it nevertheless has its field of usefulness. In the case of an infant with a diarrhea persisting for several days, with a sudden or gradually increasing temperature, tympany, tenesmus, restlessness or irritability, a colonic irrigation of normal saline or sodium bicar-

bonate, or the two combined, will frequently result in a quiet, restful sleep.

If strain or tenesmus is severe, use 1 per cent tannic acid solution, followed by the time-honored starch water and laudanum solution. I have used 1 and 2 per cent mercurochrome solution, also 1 per cent silver nitrate, but am yet to be convinced that their use is justifiable.

With the infant that is not taking much water, or shows evidence of the slightest degree of dehydration, a hypotonic normal saline irrigation may be of service.

Starvation: During the first twenty-four hours of illness, all food should be withheld, regardless of type of diarrhea; water may be given *ad libitum*, as also well diluted fruit juices.

Drugs: Most cases of summer diarrhea, especially the protein and carbohydrate types, do not require the use of drugs. However, if the patient has twelve or more stools and does not show evidence of improvement within thirty-six hours, bismuth with sulphur is used. If the patient is very uncomfortable, and in the absence of tympany or much fever, opium in the form of paregoric or Dover's powder is indicated.

Lavage and Gavage: At times, regardless of exercising our better judgment, we are confronted with the fact that the infant refuses water and nourishment, in whole or in part. Then it becomes necessary to use the stomach tube. Kirley called attention to the fact that a baby who could not retain food or water when taken voluntarily, would do so quite frequently when introduced through the stomach tube. The judicious use of the stomach tube for the baby that vomits water and nourishment, or refuses either, can frequently tide over the patient until such times as it can take and retain water and nourishment.

Dehydration: Regardless of intelligent dietetics and medication, we sometimes find ourselves face to face with a patient whose life is in jeopardy from dehydration due to excessive emesis, or draining off of body fluids by way of the bowels. What are we to do to replace the body fluids? How, then, are we to replace the fluids with the maximum safety and the minimum pain? This may be done:

1st, Subcutaneously;

2nd, Intravenously;

3rd, By means of the anterior longitudinal sinus;

4th, Intraperitoneally.

1. The subcutaneous route is slower of absorption and more painful.

2. Due to the size of the veins this method is almost impractical.

3. The anterior longitudinal sinus is available in most patients from ten to fourteen months of age, but this method is somewhat tedious and is attended with danger.

4. The intraperitoneal route is to be preferred because it is not as painful, or certainly no more so, than other routes, and with little if any more hazards. More fluid can be introduced, with less discomfort and danger to the patient. The intravenous and anterior longitudinal sinus methods should be used in case it becomes necessary to add soda or glucose to the normal saline solution.

1311 Grove Avenue.

BURNS OF CORNEA.*

By C. S. DODD, M. D., Petersburg, Va.

In discussing this subject, we feel it is advisable to outline briefly the structure of the cornea.

In size, it is stated to be 12 m.m. in the horizontal diameter and 11 m.m. in vertical diameter, with posterior curvature somewhat greater than the anterior surface; it is thinnest in the center.

The cornea is situated like a watch crystal on the joining structures, and in health is transparent. It consists of the following layers:

1. Anterior layers, consisting of epithelium of pavement type with cylindrical cells the deepest; then the round, and next the last, the flat cells.

2. Bowman's membrane—which is a homogeneous substance connected with the corneal lamellae beneath. It is separated from the epithelium and has no cells.

3. Stroma or substantia propria—which is composed of ground substance and cell. The ground substance is composed of connective tissue and is united by cement substance forming bundles which are connected by laminated structure. Between the lamellae lie the cells or corneal corpuscles which are of two types,—motile and non-motile. The non-motile or fixed cell has a large nucleus and a flat protoplasmic cell body. The motile corpuscles are

the wandering cells which are really white cells that have made their way into the cornea and travel along the lymph chambers.

4. Descemet's membrane is a homogeneous hyaloid structure which forms the posterior boundary of the cornea and is chemically different from the adjoining structure. It is very resistant to chemicals or structural changes as observed in destructive changes of outer layers of the cornea.

5. The endothelium consists of a single layer of flattened cells.

The *cornea* has *no blood vessels* as these end at the margin of the cornea and then form a loop. From these loops the blood-plasma passes into the stroma of the cornea.

The *nerves* are from the ciliary and conjunctival nerves and are very numerous in stroma, passing over the Bowman's membrane and epithelium even to the outer layer; therefore, the cornea is exceedingly sensitive.

We now come to our subject proper and shall limit our remarks to burns of the cornea only, but admit there is a besetting temptation to refer to the conjunctiva and lids as well.

The *causes* of these burns include ammonia, acids, alkalies, hot metals, curling irons, and lime.

The position of the cornea makes it liable to be first injured by these substances, and our own record shows 266 cases where the cornea alone was injured as against 630 cases of burns of conjunctiva and cornea combined.

Symptoms: There are several symptoms common to all burns of the cornea, namely, pain—slight to excruciating,—impaired vision, photophobia and marked lachrymation. The cornea may look dull or opaque. The deeper the burn, the more pronounced the opacity. In light cases the opacity is gray. In severe cases the opacity is whitish, or if a few days old, yellowish-white. In the worse cases the cornea may be porcelain white and dry. The cornea may be insensitive. After a few days keratitis may develop with hypopyon and iritis.

Lime Burns: This substance on entering the eye gives rise to intense irritation and the lids close spasmodically. The copious tears that flow would be a most favorable thing in most instances, but in this case it is most unfavorable, as the lime is pressed against the cornea and the tears slack more of the lime, generating heat which hastens the work of destruc-

*Read at the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology in Charlottesville, Va., April 30, 1927.

tion. The lime forms calcareous deposits on the cornea.

Ammonia Burns: The eye is painful and smarts, but if a large amount of the chemical enters the eye, vision may be lost and the eye become like china,—dry, glistening and insensitive.

Curling Irons: These burns usually affect the epithelium only, and healing is frequently rapid. Pain is commonly severe at first, with marked photophobia.

Nitric Acid and Nitro-Sulphuric acid burns are the ones I have treated most. The eye is painful, pus soon forms, the stroma decays, and often the eye is lost.

Hot Metals: It is remarkable how slight the injury may be in some instances of burning by hot metals, but, of course, many are severe and fatal to sight.

Complications: Symblepharon, dense leukoma. In severe burns there is set up a delimiting suppuration, and a flat surface is left which leaves the vision impaired, or staphyloma, due to thinning of corneal substance. Sometimes there is perforation with iritic adhesions. Another grave complication is glaucoma.

Prognosis: It is not the burns that look the worst to begin with that necessarily have the most unfavorable termination, as, for instance, after a burn from hot metal the eye condition is alarming, but may in a few days clear up and the vision return; conversely, after ammonia burns the cornea is transparent at first, but in a few days is like porcelain. An insensitive cornea is a grave sign. The opacity is of vexing concern, and it is well to remember the extent of the opacity depends on the extent of the burn, but the intensity of the opacity depends upon the depth to which the corneal tissue has been destroyed. Glaucoma is to be dreaded here as well as in whatever condition it appears.

Treatment: Cleanse the eye of all foreign substance and cocainize with 5 per cent solution; or better, 2 per cent solution of Brityn; use castor oil or the like. We prefer troalin—tion; or better, 2 per cent solution of Butyn; to bed in a dark room and relieve pain. In lime burns, remove each particle. Sugar or salt solution may be used at first, but, after all lime is removed, use only oil.

Curling Irons: Use the general directions.

Hot Metals: Use cocain or two per cent

solution of Butyn; together with boric acid salve or troalin.

Nitric Acid and Nitro-Sulphuric Acid: Use cocain and oil; put the patient to bed, watch for complications.

Symblepharon, Glaucoma, Iritis: When these conditions occur, each will have to receive appropriate and energetic treatment.

In burns, we are opposed to the use of atropine, since we have had some sad experiences after its administration, especially with the nitric acid burns, so use cocaine and homatropine.

In treating the opacities, we use salt injections into the conjunctiva after all irritation has cleared up, together with dionin. Begin with a 2 per cent solution morning and evening for twelve days; omit for four days, then increase the strength to 5 per cent, and use as before; then 7 per cent, and finally 10 per cent—repeating if found beneficial.

SURGERY: SPECIAL AND GENERAL WITH REFERENCE TO UROLOGY.*

By JACOB S. ROSENTHAL, M. D., Washington, D. C.

Possibly no field of surgery is more often invaded by the general surgeon than that of urology. So often is this the case that I have heard several practitioners make the statement that there was no real need of a urological surgeon; and, that any need for urological surgery was readily met by the general surgeons. On a recent trip of observation, I determined to compare the work of the two by observing the same operations done by both types of surgeons. Owing to the limitation of time to a few months, nothing like a complete comparison could be made, though there was sufficient work on kidneys, bladder and prostates to get a very good idea of the differences in the two types of operators. A marked difference was observable between the older and younger general surgeons; in no small number of instances the older man's experience and good judgment was sacrificed through a desire for speed, while the younger man, not as fast, seemed in many cases lacking in surgical judgment and a clear knowledge of the work at hand.

In the case of the specialist, there was not only a marked difference in the operation itself, but in the preparation of the patient as well. In every instance the patient was sub-

*This paper is a resume of impressions gained on a recent trip of observation and study.

jected to various laboratory tests and, when deemed necessary, a more or less prolonged pre-operative treatment given. Such care is noticeable in the patient himself before and after operation. The patient is a better operative risk, and there is less chance of death following or of a stormy period of convalescence. The difference in time alone and in the comfort of the patient more than compensates for the time of preparation, to say nothing of the end results of the operation.

In kidney cases a most notable difference was seen in the incisions made by the general surgeon and those by the specialist. In the latter case the incisions were always longer and freer, the advantage being in the ease of handling the organ itself, and the lessened manipulation necessary to effect whatever surgical procedures that seemed indicated. This is a decided factor in the reduction of both hemorrhages and infections. In some cases of renal calculi, operative judgment seemed sadly lacking. In one case I saw a general surgeon attempt to operate through an incision that was entirely inadequate, and what amounted to a failure to deliver the kidney. He then bisected the kidney for the removal of several large stones, and afterwards closed the kidney wound with an ordinary running suture which failed to hold, and in a short time the continued hemorrhage made re-operation necessary. In spite of several transfusions the patient was dead four days after the original operation. The worst feature of this case lay in the fact that the kidney was to all intents and purposes functionless; and the proper thing to do would be either to remove the kidney or else let it alone. This case is, of course, extreme, and it is unbelievable that any such series of blunders could be made by one who had any knowledge of urological surgery; and would be impossible in the hands of a competent urologist. In this instance, the surgeon could not be described as an inexperienced man.

The bladder cases, with the exception of a few procedures, were left entirely to the urologist, for the skill, consideration and judgment, combined with the tediousness of the work itself, would be well beyond the average surgeon's desire because of the necessary careful and correct procedures.

In prostatic cases the urologist seemed more willing to use either the perineal or supra-

pubic approach depending upon the case in hand. As in the kidney cases, the pre-operative handling was much better and the operations themselves cleaner. The general surgeon usually takes less time than the urologist. A marked decrease in mortality has occurred in these cases due to the use of local and regional (including spinal) anesthesia, and too much cannot be said of the many advantages offered by this in most of these cases.

The hernia operations are too well known to require much comment. The urologist takes bigger bites of the conjoined tendon and a more careful inclusion of Gimbernat's ligament in the lower suture.

In operations upon the external genitals, the specialist was more deliberate and careful, the general technic and type of operations selected being the same as that of the general surgeon.

In conclusion, it would seem that the urologist, while slow, was more deliberate and appeared to have the better of it in operative work; and it would be happier if the general surgeon could achieve more of a urological viewpoint in these cases.

1422 *Massachusetts Avenue.*

ADDITIONAL REMARKS ON RETIREMENT.

By I. S. STONE, M. D., F. R. C. S., Washington, D. C.

In a former paper I have given a brief account of what I have found interesting and agreeable as a pastime in view of my retirement a few years ago (see *Virginia Medical Monthly*, July, 1927). In the present article I wish to consider the general subject of retirement for business and professional men.

One of the frank opinions by recent writers is that of Mr. Edward Bok, who strongly favors retirement before mental and physical impairment begins. Mr. Bok has had a very active literary and business life, and many will remember that he paid fifty thousand dollars for a suggestion of the best methods of preventing war. His paper, from which I quote, will be found in the *Atlantic Monthly*, Vol. 126, p. 369. He said he "wanted to stop work and play for a while." His advice appears to be applicable alike to business and professional men, and I shall quote liberally from it.

His friends thought he must be ill, because he "wanted to play." He did not object to dropping with the "harness on," but preferred

to drop "with the blinders off." One friend gave him twelve months to degenerate. Another suggested that he "would have a complete mental collapse in two years." But, he says, "The great adventure of life is something more than work—and money. One of the most pathetic signs . . . is the inability of some men to let go, not only for their own good, but to give the man behind them a chance. They hang on because they think themselves indispensable to their business, while in scores of cases the truth is exactly the opposite; the business would be distinctly benefited by their retirement and the coming to the front of the younger blood in affairs. Many are afraid to let go, fearing they would not know what to do. At fifty or seventy, they are slaves to business with no inner resources. One may thus be useless to himself and a burden to himself and family. Life is more than making money or the accumulation of wealth. Those who miss this truth miss the greater part of joy and satisfaction that can come into life."

Anyone familiar with the writings and the life-work of Mr. Bok may easily see that, although he calls his *after-retirement* activities "play," most of us would be weary enough and would want to return to "work" rather than follow his lead in "play." It will be interesting to hear from him a few years hence, for he will surely report his experiences.

The question of retirement comes ruthlessly and relentlessly upon one who, having given his best years to professional life, finds himself less efficiently productive, either in financial returns or in personal influence. This ruthlessness appears the more distressing and uncharitable when we realize that probably one-half of his time and labor has been for the poor or for those who refused to pay him for his skill and attention. It seems all the more serious to those who, approaching retirement, have not the "inner resources" which Mr. Bok mentions.

A retirement age for physicians has not yet been definitely fixed, save in certain institutions, such as hospitals, but there is a strong tendency toward this measure, which will develop greater strength in the future. Dr. Osler's famous allusion* to the retirement of medical men before they reach old age, is so well known that I forbear quoting it, yet we

must admit that he made good use of the psychological moment when he gave utterance to his opinion. Since Osler's day, no one has been bold enough to express a similar view, whatever they may have thought about it.

Beyond doubt this question of the retirement of physicians on account of age, is a modern one and has been brought about by the various movements looking toward better medical schools and hospitals and standardization of equipment for all those who labor for the best interests of the public and medical profession, and the prolongation of human life.

A future paper may refer to retirement from the viewpoint of the hospital and medical school.

1618 Rhode Island Avenue, Northwest.

Clinical Reports

A CASE OF DECOMPENSATING RHEUMATIC HEART:

Compensation Restored With a Loss of Forty-five Pounds of Dropsical Fluid in Twenty-four Hospital Days.

By ALEXANDER G. BROWN, Jr., M. D., Richmond, Va.
Stuart Circle Hospital.

A white woman, aged fifty-six, was admitted to the hospital May 20, 1927, weighing 190 pounds, complaining of shortness of breath, swollen legs, arms, abdomen, and face. The patient had had rheumatism after her marriage. This followed attacks of tonsillitis. Seven years before entering the hospital she had had some dropsy. She was told by her physician that she had a "rheumatic heart." Since last Christmas (1926) she has had more or less swelling in various parts of her body. She has been under the care of several physicians, but there has been a persistence of dropsy. A few weeks prior to entering the hospital, the dropsical symptoms had become very difficult and uncomfortable.

The patient was a large woman. She showed a swollen body; and there was a manifest difficulty in breathing. She was pale and weak, and quite miserable. Examination of the heart disclosed evidence of labored action, enlargement, dilatation and valvular disease. The heart was markedly enlarged and dilated, and was rapid in rate, intermittent and irregular. There were systolic and diastolic murmurs over the precordium and jugular pulsations. The

*See: "The Fixed Period" in "Aequanimitas," p. 391, especially pp. 399-400.

auricles were fibrillating. The diagnosis arrived at was regurgitation of the aortic and mitral valves, with dilatation of heart, and decompensation.

Moist rales were present at the bases of the lungs, with moisture on both lungs. There was demonstrable an accumulation of dropsical fluid in both pleural sacs. The abdominal cavity showed an accumulation of dropsical fluid. There was a marked edema in the abdominal walls, legs, arms, and face. The liver was enlarged. The patient gave a history of almost complete suspension of urine for thirty-six hours before entering the hospital. In general, the patient was swollen, cyanotic, and dyspnoeic.

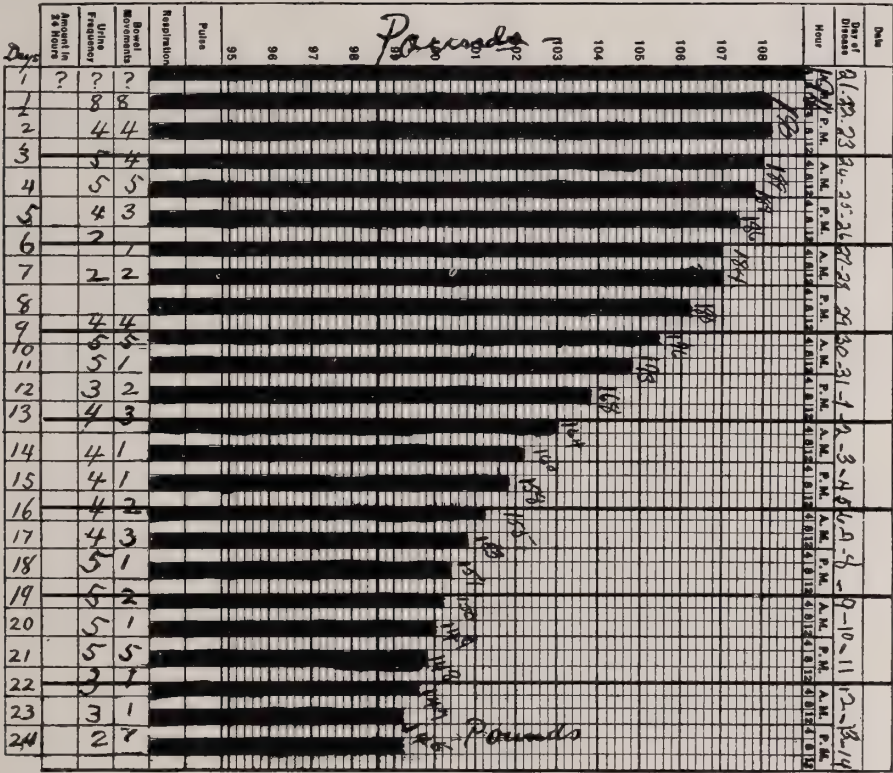
Laboratory findings may be briefly summarized. There was a trace of albumin in the urine; one to three pus cells and many epithelial cells. The blood urea was 20 mg. per 100 c.c. of blood. Red blood corpuscles counted

grain and a half digifolin tablet every four hours for first two days, then one tablet every six hours. She was also given theobromin sodium salicylate in eight grain doses every twelve hours. A mild "saline" water was given at night.

Upon this regimen and medication, the patient made steady loss of fluid. The losses may be observed in following notations:

WEIGHT IN POUNDS		WEIGHT IN POUNDS	
194—	1st day	164—	13th day
190—	2nd "	160—	14th "
190—	3rd "	158—	15th "
189—	4th "	155—	16th "
188—	5th "	153—	17th "
186—	6th "	151—	18th "
184—	7th "	150—	19th "
184—	8th "	149—	20th "
180—	9th "	148—	21st "
176—	10th "	147—	22nd "
173—	11th "	145—	23rd "
168—	12th "		

She was discharged from hospitalization on the twenty-fourth day (6/15/27), having apparently lost all gross dropsical fluid. Her



3,390,000, and the hemoglobin was 66 per cent. Blood Wassermann was negative.

The patient was kept in bed in hospital. She was restricted to 300 c.c. of fluid intake daily. She was given a low protein diet with a low maintenance caloric value. She was restricted in the use of salt. She was given a

loss of weight was accompanied by an increased urine output. She left the hospital much improved. Heart diameter was reduced. The heart rate and rhythm were more normal, and compensation apparently was re-established. Lungs were clear, liver was more normal in size and kidney secretion was ample.

COMMENT

Dropsy is always difficult. In no case is it more difficult than in heart disease. It usually portends terminal conditions; it admonishes one of approaching heart failure; it means collection of fluid in tissues and cavities before death unless a turn of the tide is brought about by clinical methods. It has not only this significant meaning, both to patient and physician, but also it brings about a group of symptoms which adds to the discomfort of an already harassed patient. Hence, dropsy and edema may be briefly considered as one large clinical problem in the management of the cardiopath. There are three types of edema. Inflammatory edema is one in which the fluid saturates the cells, but does not shift with gravity or position. With this type, of course, we are not dealing. Then there is edema of the nephritic. In this type fluid is suspended in subcutaneous tissue. It readily moves and shifts its position. In this form there is an increase of water in the blood and an increase of sodium chloride. Lastly, there is cardiac edema. This is hypostatic. There is not that change of the relative amount of water and sodium chloride in the blood. However, there are frequently combinations of the cardiac and nephritic forms of edema. This is due to the frequent association of nephritic disease with heart disease. This relation or association has a significance of paramount importance to the clinician, because upon its determination rests the line of therapeutic approach.

Recent reports upon the question of relieving edema in nephritic and heart cases have afforded encouragement. For instance, the current publications of the past two years have pointed out the favorable effect of the use of ammonium chloride and novasurol in nephritic edema. Of course, a dietary consideration was also given, as low salt, and low protein diet, and a limited water intake, were combined in the treatment. The experience of Keith, Barrier and Whelan, (*J. A. M. A.*, 1925, xxxv, 799-806) is interesting and gives the results of a careful observation of twelve cases of nephritic edema treated with ammonium chloride and novasurol. The latter was injected intramuscularly and intravenously in doses of from 0.2 to 2.55 c.c. Diuresis was best obtained when ammonium chloride had preceded the administration of novasurol. In all the cases marked diuresis and loss of edema was secured. These observations are in keep-

ing with our experience with this treatment. The importance of a limited fluid intake and a low diet of salt and protein is of equal significance. In some of our cases a mere limiting of water, salt and protein, has been followed by a gradual loss of edema without medication. In these cases renal function has improved and nitrogen retention has decreased as the edema was lost. Edema of heart disease in which we are interested in this case report, has been recently well considered in an article by Marvin, *J. A. M. A.*, Vol. 87, No. 25, page 2043. Marvin treated the subject under the title, "The Value of the Xanthine Diuretics in Congestive Heart Failure".

Under the use of xanthine diuretics, seventy-seven cases of congestive heart failure were observed, but thirty-six were made edema free by digitalis alone, while of the remaining forty-one, thirteen were relieved of edema by one or more of the xanthine diuretics, five were improved, and five only moderately benefited. The remainder of the cases were benefited by the diuresis secured.

1135 West Franklin Street.

TWO CASES OF NEPHRITIS APPARENTLY CURED BY TONSILLECTOMY.*

By B. M. RANDOLPH, M. D., Washington, D. C.
Professor of Clinical Medicine in George Washington University.

In modern times it is in the laboratory that the preliminary research is done which makes possible any really effective advance in the treatment of disease. A very conspicuous exception to this rule is the hypothesis that focal infection is the cause of pathological change in remote structures. The only thing that maintains this hypothesis is the empirical fact that surgical removal of such foci are followed by the cure of the signs and symptoms of disease attributed to them. The laboratory has lagged behind the clinic in furnishing a scientific thesis by which we can control our clinical impressions. It is to be hoped that the extensive study of this problem which is going on in the various laboratories of the world may soon open a line of approach, which will supply a more scientific conception than the present clinical guess and therapeutic test.

The case here reported is that of:

A white male, referred by Dr. Whitson, for study and advice. First seen June 25, 1921. Aged 38; machinist; married.

*Read before the George Washington Medical Society, February, 1927.

Present illness began May 8, 1921, approximately seven weeks before this visit. In the morning he had three chills and a very sore throat. There was some fever, which lasted three or four days. Had severe abdominal pains, which confined him to bed two weeks. During this time he had some vomiting. He still has nausea, which is worse in the evening, and occasional headache.

Blood appeared in his urine a few days after the onset, and has persisted since. He was examined by a genito-urinary surgeon, who found no local infection, and told him that the blood came from both kidneys. Ten days before the onset he was struck in the right side and knocked from a train. He is very constipated, and the urine is frequent and profuse.

Family History. Father died at 60 of prostatic cancer. Mother living and in good health. Has eleven brothers and sisters, all in good health. His wife is healthy, and has had no children or pregnancies.

Personal History. Had a chancre at 18 years, and was subsequently successfully treated for lues by his family physician. Operations: herniotomy in 1908; appendectomy in 1909; eye removed for acute glaucoma in 1913. Had quinsy in 1912.

Examination. Anæmic appearance. Swelling under eyes. Second right upper and first right lower bicuspid crowned. Throat is not acutely inflamed, and there is no adenitis. Thyroid is full, but does not appear pathological. Heart, lungs and abdomen negative. No abnormal reflexes found. Blood pressure 148-88. Weight 144 lbs.

Urine. Acid; specific gravity 1.010; albumen—a marked positive reaction; numerous granular and epithelial casts; also red cells and leucocytes.

Diagnosis. Acute nephritis, now becoming chronic.

He was advised to enter the hospital for further observation and treatment, and was admitted to George Washington University Hospital June 28, 1921.

It was further noted that since April 1, 1921, he had been having vague digestive disturbances, with a choking sensation, which were relieved by eating. Also, that on January 13, 1921, he passed an unquestioned examination for life insurance, and was issued a policy for \$3,000 by a standard life insur-

ance company. Has had three negative Wassermanns since treatment of lues.

Prior to his admission to the hospital, blood examination was reported as follows: Hb. 60%; red cells 3,300,000; white cells 15,000; polymorphonuclears 62%; mononuclears 4%; lymphocytes 32%; basophiles 1%; eosinophiles 1%. Some achromia; moderate anisocytosis; no other abnormality.

Tonsil Culture. Streptococcus hemolyticus and streptococcus viridans in large numbers and in about equal proportion.

The temperature on admission was 99°, and, except for a mild and transient febrile reaction following tonsillectomy, it did not go higher during his stay in the hospital. No abnormal acceleration of pulse or respiration.

Examination showed pus in tonsils, and their removal was advised as soon as the general condition should permit.

Treatment. At the outset he was placed on a diet of 800 c.c. of skimmed milk, and water as desired.

June 30. Diffuse patchy urticarial eruption, itching intensely. He attributes it to milk. Milk discontinued and a protein free mixed diet substituted.

July 3. Much better; rash almost completely gone; puffiness under the eyes has disappeared, and there is no edema of the ankles. Sleeps well.

July 4. Continues to improve subjectively; urine less frequent.

July 18. Improvement has continued and he is permitted to sit up and walk about ward.

July 26. Tonsillectomy under novocaine anesthesia by Dr. Tibbetts. Normal course and recovery.

Laboratory Studies. During his stay in the hospital, nineteen urine examinations were recorded. The quantity approximated 2,000 c.c. Fresh specimens were always acid. Specific gravity was usually about 1.010. After operation 1.010 to 1.015; the day before discharge 1.020. Albumen, a faint trace to a large amount, present in all specimens examined except one. Amount lessened distinctly after operation. None the day before discharge. Casts, hyaline, granular, or both, were reported in ten examinations. Red cells, occasional to many, occurred in five reports. Occasional red cells but no casts on the day before discharge.

Blood Chemistry. (By Dr. Ralph E. Myers).

June 28. Urea nitrogen 21.5 mg.; non-protein nitrogen 61.5 mg.; chlorides 550 mg.

July 5. Urea nitrogen 24 mg. per 100 c.c.; non-protein nitrogen 55 mg.; chlorides 495 mg.

July 14. Urea nitrogen 16; non-protein nitrogen 48 mg.

July 25. Urea nitrogen 21; non-protein nitrogen 59 mg.

Patient was discharged improved August 4, 1921.

Subsequent office visits as follows:

September 13, 1921. While at work felt pain in right hip. Sometimes it is referred to testicle. Weight 161 $\frac{3}{4}$ lbs. Normal patellar reflexes. Throat shows good healing. Appetite good; bowels regular; no indigestion or headache. Hb. 80%. Urine—acid; sp. gr. 1.015; a faint trace of albumen; very occasional red cells; no casts. Iodide of iron, which he had been taking since leaving the hospital, was now discontinued, and sodium iodide was prescribed in increasing doses. This was with the idea that the pain complained of might be a luetic phenomenon.

Sept. 23, 1921. Weight 163 lbs. Hb. 85%. Urine—acid; sp. gr. 1.012; albumen—a slight increase. Symptoms of iodism present, and dose reduced. Spermatic cord is thickened. A suspensory for testicles prescribed, after which this symptom disappeared.

Sept. 30, 1921. Weight 165 lbs. Urine—albumen negative. A few red cells, hyaline and hyalo-epithelial casts. Iodide discontinued.

Oct. 7, 1921. Urine—acid; sp. gr. 1.010; albumen and sugar negative; occasional red cell and one epithelial cast seen in centrifuged specimen. Weight 163 $\frac{1}{2}$ lbs. Condition otherwise unchanged.

Oct. 21, 1921. Pains in abdomen. Urine—sp. gr. 1.025; albumen positive; red cells more numerous and occasional hyaline cast.

Nov. 25, 1921. Urine—acid; sp. gr. 1.016; albumen negative; occasional red cell; no casts. Hb. 75%. Weight 168 $\frac{1}{2}$ lbs. Improved. Since last visit has arranged for help which lessened his work and exposure.

Dec. 1, 1921. His work as a machinist entails his becoming overheated, and making sudden changes from heated shops to out-of-doors. He finds he is much more sensitive to chilling than formerly. He has now arranged to take my advice, and is leaving for Florida forthwith.

I lost sight of him but within the past year

Dr. Tibbetts told me that this patient had consulted him for a mild acute sinus infection, and reported himself as otherwise well. About February 1, 1927, I was called up concerning him by a physician who had recently examined him for insurance, and who told me that his examination showed no disability. This led to my looking him up and making an appointment with him for re-examination.

He reported February 6th. Upon leaving Washington, in 1921, he went to Florida, as advised, and remained there a year or more. During this time he kept on a vegetarian diet, except that he ate freely of sea-food. He improved steadily, gaining in weight and strength, and entirely lost the sensitiveness to chilling that he had had. He left Florida to accept a position in an electrical plant in Erie, Pa., where he remained two years. The change of climate, with long severe winters did not affect him unfavorably, but seemed rather to benefit him than otherwise. He returned to Washington in 1924, and has been perfectly well here ever since.

He weighs 180 pounds, eats everything he desires, and looks ruddy and robust. Blood pressure 134 systolic; 76 diastolic. Urine—Amber, clear; sp. gr. 1.018; an extremely faint trace of albumen and a very occasional hyaline cast; otherwise normal. Blood—Dextrose 93 mg. per 100 c.c.; urea nitrogen 15 mg.; chlorides 490 mg.

He was declined by the life insurance company on the basis of the history of nephritis.

Case II.—In 1921, a pupil nurse in the George Washington Hospital Training School, while on temporary duty in another hospital, contracted scarlet fever. The infection appeared to be a mild one, the fever and eruption being of short duration. While still in bed, and on a limited diet, she abruptly developed acute nephritis with complete suppression of urine for nearly 24 hours. She recovered from the acute phase, but was left with a chronic albuminuria and cylindruria, which persisted over more than a year that she remained under my care. At the same time she had a rather severe secondary anæmia, the hemoglobin reading as low as 55%. She had at this time chronic purulent infection of the tonsils.

I did not at that time have the benefit of the knowledge that has since been reached as to the etiology of scarlet fever. However, I had a very definite opinion as to the role of focal

infection in the etiology of certain types of nephritis. It seemed to me that the dreaded post-scarlatinal nephritis might be due to the access of virulence of the streptococci already in the tonsils through the synergism of the scarlet fever. On the basis of this hypothesis, it seemed rational to try to cut off the toxin supply, and, with this idea in view, I advised tonsillectomy in this case. Dr. Breeding removed her tonsils September 8, 1922.

During the short time after the operation that she was under my care, the albumen persisted. After a short rest, she took up work in a physician's office, and later went back to professional case nursing, and has continued doing so since. I have seen her recently, and she appears well and says she is, except that she cannot stand a great deal of strain.

Urine—Amber, clear; acid; sp. gr. 1.010; no albumen, casts, or other pathological findings.

Blood—Dextrose 79 mg. per 100 c.c. Urea nitrogen 11 mg.

Hemoglobin 75%+; red cells 3,580,000; leucocytes no increase.

These cases seem to strengthen the hypothesis that there is an etiological relationship between focal infection and certain types of renal disease. Of course, advanced cases of nephritis cannot be expected to benefit by the surgery of focal infection. It does, however, seem proper in early cases, where there is an active focus of infection present to remove the infected focus with a view to arresting the progress of the renal lesion, if not to effect a cure.

1339 H Street, Northwest.

A CASE OF SERUM SICKNESS FOLLOWING DIPHTHERIA TOXIN-ANTITOXIN.

By BLANTON P. SEWARD, M. D., Richmond, Va.
Associate in Medicine, Medical College of Virginia.

This case of serum sickness is reported because of the rarity of occurrence of reactions following the injection of toxin-antitoxin. With the care used in preparing the toxin-antitoxin mixture, and the widespread use of this means of immunizing against diphtheria, the number of reactions is almost negligible. In Richmond 3,400 children received the complete treatment last year. The City Health Department has no recorded reactions, though a few of the children had sore arms for several hours. Reports from other cities, where much larger series of children were given toxin-antitoxin and every possible means taken for checking

the reactions, show very few cases of reactions.

Park and Zingher found a large number of local and constitutional reactions when the old preparations containing 3 to 6 L+ doses of toxin were used. In contrast to this, the local effects of the injection were sometimes slower in appearing and more lasting, though there were practically no constitutional reactions to the new type of mixture which contained .1 L+ dose of toxin.

The toxin-antitoxin mixture used at present contains .1 L+ dose of toxin. The amount of horse serum has been so greatly reduced that there does not seem to be sufficient quantity of the serum to cause an appreciable reaction except in extremely susceptible persons. The reactions are said to be due to the protein contents derived from the culture media. Bauer and Wilmer, writing from Philadelphia in March, 1926, stated that they had given toxin-antitoxin treatments to children who reacted positively to horse serum, some of them asthmatics, without getting any reaction from the toxin-antitoxin.

Park and his associates found that reactions in infants are negligible; slight and infrequent in young children from six months to three years of age, the period when immunization is most necessary; rather severe in perhaps 10 per cent of older children, and moderate or severe in a larger percentage of adults. Thus, as an individual grows older the chances for a reaction are increased. The experience of other Public Health workers accords with this report. Park also stated that persons showing pseudo-reactions to the Shick test give the most severe reactions to toxin-antitoxin injections, though some who give no pseudo-reaction to the Shick test react moderately severely to toxin-antitoxin. Bauer and Wilmer, however, state that pseudo-reactions are of no significance from the standpoint of constitutional reaction to toxin-antitoxin.

In the case herein reported, no Shick test was made. To what extent the first dose of toxin-antitoxin sensitized this patient we do not know. The arm was sore for several hours after the injection but probably not more so than is seen in other cases. We do not regard a sore arm as a reaction any more than when it occurs after other injections. Although this child gives no history of asthma or susceptibility to proteins, she may react to

some of the protein tests. We are inclined to believe that the first injection produced some sensitization, and the second brought about further sensitization which manifested itself in the manner described. The local and constitutional effects, followed by an urticarial eruption conform to the type of severe reaction reported by others. That the reaction was serum sickness rather than an anaphylactic shock is evidenced by the time and manner of its appearance.

The development of a reaction does not preclude the possibility of diphtheria occurring later, though the patient may receive some degree of immunity from the toxin-antitoxin. Should it become necessary at any time to administer antitoxin or any other serum, it would probably be safe to do so by beginning with small doses.

Katherine T., white, nine years of age, was seen on February 25, 1927. She had received a dose, the second of diphtheria toxin-antitoxin at school on February 23. A few hours following the injection the arm became quite sore. On the following day the arm was swollen and more painful, the pain extending into the shoulder. The child felt too badly to go to school. On the second day the arm was more swollen and painful; there was a languid feeling and nausea at intervals. About three o'clock in the afternoon the sole of the right foot began to itch; the mother looking at it observed a white, elevated area which she thought was due to an insect bite. During the next six hours the child grew worse, was nauseated constantly, and had some abdominal pains which were probably due to a purgative given by the mother about the middle of the day. An eruption appeared around the lips, on the right side of the body and on the leg. The skin itched intensely. When speaking, she could not articulate distinctly.

Nothing else of significance in the present or past history was obtained except that she was treated about one year ago for a "run down" condition by a physician.

On examination the child's lips were edematous; a brilliant red erythematous eruption surrounded the lips, covered the entire right arm almost to the wrist, with scattered areas on the chest anteriorly and posteriorly, and on the abdomen and thigh. On the right wrist three small wheals were seen, two giant wheals on the outer and inner aspects of the thigh ex-

tending into the groin, and several small ones on the ankle and sole of the foot were very distinct.

The tongue was considerably thickened; the pharynx showed a mild generalized congestion, and pus was expressed from the tonsils. The nose showed moderate congestion. The cervical glands were enlarged.

Lungs: a clear, puerile type of breathing was heard. The heart rate was 130; the quality of the sounds was good.

Abdomen: there was moderate generalized tenderness.

Temperature, 100.2.

The case was recognized as one of serum sickness following the injection of toxin-antitoxin, and treatment was instituted.

During the following twelve hours the condition of the child was worse, and the eruption spread over a large part of the body. Twenty-four hours after the first visit, the child was still very uncomfortable, the greatest discomfort being due to the intense itching of the skin. At this time there was a generalized redness, less brilliant in color, from the forehead to the feet. The tongue was less edematous, and the child could speak more distinctly. The throat showed less congestion. The heart rate was 108, and the lungs clear.

At the third visit, forty hours after the first, the skin was entirely clear except for a few scattered, circular rings which surrounded the site of the wheals. The tongue was normal in appearance, and the patient felt well. Five days later the child was playing with other children.

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STREPTOTHRIX CONCRETION OF CANALICULUS—WITH REPORT OF CASE.*

By CHARLES A. YOUNUG, M. D., Roanoke, Va.

There has been considerable confusion in the classification of this organism, having at dif-

*Read before the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology, at Charlottesville, Va., April 30, 1927.

ferent times been termed *Leptothrix*, *Streptothrix*, *Streptothrix forsteri* and *Nocardia*.

Jordan¹ gives the following classification of the pathogenic *Trichomycetes* which stands in an intermediate position between the bacteria and the higher fungi:

- Trichomycetes* {
- 1—*Leptothrix*.
 - 2—*Cladothrix*.
 - 3—*Nocardia* (sometimes termed *Streptothrix*, a name also applied by some writers to the whole group of *Trichomycetes*. According to the rules of botanic nomenclature, however, since the name *Streptothrix* was preempted in 1839 for a mold belonging to the *Damatiaceae*, it is not applicable to any of the organisms under consideration.
 - 4—*Actinomyces*.

Shumway,² in 1921, reported two cases, and found only sixty-eight recorded cases in the literature. The first clinical description of this condition was that of Albrecht Von Graefe in 1854, who proved that the concretions were of an organic nature.

Twelve additional cases have since been reported.

Ferdinand,³ three cases, all in the lower canaliculus; Raynant,⁴ three cases, Francke,⁵ two cases, one in the upper and the other in the lower canaliculus; Fava,⁶ one case; Ginsberg⁷ reports one case; Ostroumoff⁸ reports one case in the lower canaliculus. The observation that streptothrix infection of the canaliculi occurs most frequently in women led Feigenbaum⁹ to think that the organism might have been transmitted from the vagina. Search of the vaginal flora in these cases was, however, negative. Parker¹⁰ reports one case with involvement of upper canaliculus.

REPORT OF CASE

Miss M. B. C., white, thirty-six years of age, referred December 31, 1926, complained of tearing of left eye also a growth in the lower left lid. Condition began eight years ago with tearing. Some months later, she noticed slight swelling of the lower left lid, which has gradually grown larger. The growth has never been painful, and patient has never been able to squeeze out the contents. Has noticed a slight-

ly offensive odor of the tears. Neither the eye nor eye-lids have ever been inflamed.

Examination showed the right eye to be normal—as was the left, with the exception of a firm tumor about 5 m.m. in diameter in the region of the lower left canaliculus. The tissues about the tumor showed no signs of inflammation, nor was there any tenderness to pressure in this region. Pressure over the lachrymal sac caused no regurgitation. The lower lid had two openings, each of which appeared to be a normal punctum. The puncta were 3 m.m. apart, the external punctum being directly under the upper punctum, and the accessory punctum 3 m.m. internal to the normally placed punctum.

TREATMENT

With a probe pointed lachrymal knife, the two puncta were connected by incising the intervening tissue, leaving a slit 3 m.m. in length through which the concretion was removed piece-meal with a small curette. The lining membrane of the canaliculus was then swabbed with a 3 per cent solution tincture of iodine.

The concretion was brownish in color, granular in appearance, and had a slightly offensive odor. Suspecting this to be a *Streptothrix* infection, two unstained slides were sent to the Hygienic Laboratory, Washington, D. C. Their report follows:

"Diagnosis—*Streptothrix*. Smears show long strands which are Gram negative and contain rows of Gram positive granules. What appears to be true branching is seen in places. The findings are not inconsistent with a *Streptothrix*."

No cultures were obtained. Patient was last seen three months after removal of the concretion, at which time the left eye was functionally normal, and, with the exception of the 3 m.m. slit present in lower canaliculus, the lids showed no signs of the previous infection.

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Sir James Y. Simpson.

Simpson (Sir James Young) [1811-70]. Works of . . . 3 v. 8°. *Edinburgh, A. & C. Black*, 1871-2. v. 2. Anesthesia, hospitalism, hermaphroditism, and a proposal to stamp out small-pox and other contagious diseases, edited by W. G. Simpson.

For Biography, see Simpson (Eva B.) Sir James Y. Simpson. 8°. *London & Edinburgh*, 1896.

For Portrait, see Richmond & Louisville M. J. 1870, ix.

Sir James Y. Simpson is generally recognized as the father of obstetric anesthesia. On January, 1847, he performed a version on a patient with a contracted pelvis, under ether anesthesia. By November of the same year he was using ether routinely in both natural and morbid parturition. While Simpson was enthusiastic over anesthesia he was not entirely satisfied with the anesthetic agent. He experimented on himself and his friends with a number of volatile substances, finally selecting chloroform as a more suitable agent. In 1848 he was using chloroform almost exclusively, and it was largely due to his influence that chloroform supplanted the older anesthetic so completely in obstetrics and even in surgery in the British Isles and on the Continent. It should be remembered that conditions were much less favorable for the use of ether eighty years ago. Most of the work was done in the home and heating and lighting required an open flame. The operations were quickly performed and the anesthetic pushed only to the point of insensibility to pain. (See Dabney's Life and Campaigns of Lieut.-Gen. Thomas J. Jackson, *New York*, 1866, p. 695). No wonder then that the superior pleasantness, convenience, and non-

explosiveness of chloroform made it the more popular agent.

Sir James Y. Simpson was not only interested in inhalation anesthesia, but performed many experiments on himself, his pupils, and on lower animals in attempts to produce local anesthesia.

In 1871, one year after his father's death, Sir W. G. Simpson arranged the papers, letters, controversies and lecture notes upon

ANÆSTHESIA, HOSPITALISM HERMAPHRODITISM

AND A

PROPOSAL TO STAMP OUT SMALL-POX AND
OTHER CONTAGIOUS DISEASES

BY

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EDINBURGH

ADAM AND CHARLES BLACK

1871

(The right of translation reserved.)

Reproduction of title page of Dr. Simpson's book,
"Anesthesia Hospitalism, Hermaphroditism."

Anesthesia, Hospitalism, etc., in logical order and published them in a convenient form. This volume contains the interesting controversy between Sir James and Dr. Jacob Bigelow as to the priority claims of Edinburgh and Boston, besides many answers to religious and other objections to the use of anesthetics in midwifery and surgery. His letter to Professor Meigs of Philadelphia is especially elabo-

rate and painstaking. There is also a good introductory chapter on the history of anesthesia, particularly from the standpoint of the obstetrician. This collection of papers gives one an excellent idea of the almost unbelievable opposition of the profession and the public to such a humane practice.

That Dr. Simpson approached the subject as a careful scientist as well as controversialist is shown by the following extract from his first paper on anesthesia (*Edinburgh Monthly J. of M. Sc.* March, 1847). "A careful collection of cautious and accurate observations will no doubt be required, before the inhalation of sulphuric ether is adopted to any great extent in the practice of midwifery. It will be necessary to ascertain its precise effects, both upon the action of the uterus, and of the assistant abdominal muscles; its influence, if any, upon the child; whether it gives a tendency to hemorrhage or other complications; the contra-indications peculiar to its use; the most certain modes of exhibiting it; the length of time it may be employed, etc."

James Young Simpson was born precipitately in Bathgate, Scotland, June 7, 1811, the eighth child of the village baker. He entered school at four years and his aptness and good memory was so remarkable that his family decided that James should be their student and that they would invest their earnings in his education. At fourteen years he entered the Art Classes of Edinburgh University and, before he was out of his teens, he passed his "final" in Medicine. "His extreme youth prevented his taking his diploma at once and becoming M. D." His brothers gave him funds for a foreign tour, and he spent three months visiting various hospitals in London and across the Channel. In 1838 he became lecturer in obstetric medicine in the Extra-Academical School, and in 1839 he succeeded Dr. Hamilton to the Chair of Midwifery. In 1847 he was appointed one of her Majesty's physicians in Scotland, the first of a long list of honors that culminated in a baronetcy in 1866. "Foreign countries had showered their honours on him till their list swelled into pages; but after his name he usually wrote only M. D. and the D. C. L. degree he got from Oxford".

In appearance he is usually described as a big little man with a pleasing voice and laughing eyes. Gerald Massey said he had a head of Jove on the body of Bacchus. A contemporary said that he crowded into every year three

times as much research as a very industrious man could manage, ten times as much controversy, and twice as much practice. His writings indicate a wide range of interest,—obstetrics and gynecology, surgery, medicine, preventive medicine, hospital construction, and archaeology. Yet, busy as he was, he never lost an opportunity to play with children and was noted for the apt little nicknames he gave his young comrades.

M. P. R.

Correspondence

Ephedra and Ephedrine Not New Pharmaceuticals.

Richmond, Va.,
August 22, 1927.

TO THE EDITOR:

Your editorial upon ephedrin in the August issue of the MONTHLY, and most other literature upon the subject, call forth the idea that that alkaloid had its first production but recently, and that its sole source is the plant *ma-huang*, which has been used by the Chinese for a thousand years, it is said.

I do not know how long the same or a similar plant has been known and used in this country, but, in view of the constantly increasing use of ephedrin and because of the idea that the agent is a production of the past two or three years only, it occurred to me that the readers of the MONTHLY may be interested in some facts with regard to ephedra and ephedrine to which my attention was accidentally directed a few weeks ago. In looking over Dorland's *Medical Dictionary*, edition of 1911, I found ephedra, the plant, and ephedrine, the alkaloid, are described as follows:

Ephedra (ef' ed-rah) [Gr. *epi* upon + *edra* seat]. A genus of gnetaceous plants. *E. antispyphilica*, *E. vulgaris*, and others are used in syphilis, rheumatism, and diseases of the bladder.

Ephedrine (ef' ed-rin). An amorphous medicinal preparation of ephedra. 2. An alkaloid of the same: its chlorid is mydriatic. *e. homatropin*, a compound of ephedrin hydrochlorate, 1 part; homatropin hydrochlorate, 1-100 part; water, 10 parts: a good mydriatic.

The claim of novelty being thus refuted, an older work was sought in the endeavor to discover if the drug were known before 1911, and in Merck's 1907 *Index* this was found:

Ephedra (Cay Note; Canutillo; Whore-house Tea; Tapote; Teamster's Tea). Lvs. & branches of *Ephedra nevadensis* S. Wats. (*E. antispyphilica*, C. A. Meyer) Gnetaceae.—*Habit.*: U. S. (Calif.;

Nevada).—*Etymol.*: Fr. Grk. "epi," upon, & "edra," seat, *i. e.*, the plant climbs & grows upon rocks.—*Constit.*: Ephedrin (a glucosidal tannin).—*Anti-syph.*; *Astring.*—*Uses*: Gonorrh.—*Dose* 30-120 grains (2-8 Gm.) in powd., fld. extr., or infus.

Ephedrine. Alkaloid fr. lvs. of *Ephedra helvetica*, C. A. Meyer, Gnetaceae.—. . . Colorless cryst.—*Sol.* A., E., C., W.—*Mydriatic*.

Ephedrine Hydrochloride Merck . . . Wh. need.—*Sol.* W., A.—. . . *Mydr.*—*Uses*: One to two drops of 10% aqu. solut. in eye, inst. of atropine or homatropine.—No irritation or disturb. of accommodation.

Then follow Ephedrine (Pseudo-) Merck, an alkaloid from *Ephedra vulgaris*; and its hydrochloride, having the same physiologic action as the first two, respectively, except it is stated in addition that the pseudo-hydrochloride produces no disturbance of refraction.

Flushed with the success of my quest, Shoemaker's *Materia Medica and Therapeutics*, edition of 1901, was consulted and yielded so richly that the article is quoted in full:

Ephedra.—Mormon Tea. The stems or whole herb of *Ephedra antispyllitica* (Gentianaceae) is used in Arizona as a recent infusion, or in the form of fluid extract (dose, 4 to 7.5 c.cm., or fʒi-ij) as an alterative, and especially in the treatment of gonorrhea and syphilis. It contains a peculiar kind of tannin, to which its effects are probably attributable, according to Prof. Oscar Loew's analysis; although in a Japanese variety, *E. vulgaris*, Professor Nagai discovered an alkaloid, which he named **Ephedrine**.

The physiological action of ephedrine has been studied by Professor Bogoslawski, who concluded that it influences especially the motor apparatus of the heart and probably also the cardiac muscle. It at first reduces blood-pressure temporarily and accelerates the pulse, but arterial pressure is finally elevated and the pulse retarded. The respiration is quickened in the beginning by small doses, but, under the influence of larger amounts, sooner or later becomes slow and irregular. The pupils are dilated and salivation occurs. Professor Bogoslawski places the active dose of the alkaloid at 0.10 to 0.50 Gm. (or gr. iss-vss) for adults. The best preparations for use are the fluid extract and the ephedrine hydrochlorate (*Medical Bulletin*, Aug., 1894). The alkaloid occurs in the form of colorless crystals. Ephedrine hydrochlorate is also colorless and is soluble in water.

Ephedrine, in 10-per-cent solution, is a mydriatic, dilating the pupil without irritation in forty to sixty minutes. Under the name of *Mydrin* a combination of ephedrine and homatropine has been employed, and is esteemed particularly serviceable for diagnostic purposes on account of the transitory character of its action. Mydrin is a white powder, soluble in water. It is used in the strength of 10 per cent.

Therapy.—Dr. H. H. Rusby (*Druggist's Bulletin*, 1888, p. 220), is satisfied that the reputation of this drug as a remedy in gonorrhea and syphilis has some solid foundation. As an antibleorrhagic its action is probably very similar to that of astringents now in use. As a remedy for syphilis, he says, its value is, probably, solely that of a depurative. In the removal from the system of the accumulated products of the disease ephedra will rank with any

agent now in use, with the single exception of potassium iodide, and it may well serve to alternate or combine with that drug. It is also considered by persons living in the region of its growth to be a "sure and speedy cure for skin diseases."

Ephedra vulgaris has long had a popular reputation in Russia as an antirheumatic remedy. Clinical experiments by Dr. Bechtine in the service of Professor Popow showed it to be of value especially in acute articular and muscular rheumatism. It was also found to have some laxative effect and to act as a decided diuretic.

It will be noted that the effect on blood-pressure and the salivary glands tallies with that noted in recent experimentation, though dosage is greater. Nothing is said of the effect on the bronchi or the nasal membranes. Merck claims to have been the first to isolate the true alkaloid, which is levorotatory, from the others, doing so in 1888. Which one Nagai, in 1887, produced from the Japanese plant I do not know, nor do I know how much farther back runs the acquaintance of American doctors, herbalists, or others with the action of this valuable herb. I am sure it would be interesting to your readers if some one who has access to older literature would trace its history and publish it in the MONTHLY. Dunglison's *Medical Dictionary* of 1873 makes no mention of it.

The advantages of ephedrin over epinephrin in my own case are marked. Two drops of a 1½ per cent solution will, in about three minutes, begin to reduce turgescence of the nasal mucous membranes, reduction being complete in five minutes and persisting for from six to eight hours. There is no accompanying dryness, sometimes painful, sometimes succeeded by excessive secretion, and no sneezing, all of which, at times, follow the local use of epinephrine.

MARK W. PEYSER, M. D.

A Visit to Minneapolis Clinics.

June 29, 1927.

To the Editor:—It might be of some interest to your readers to learn a few things, outside of the ordinary, from an old correspondent and a loyal member of the Medical Society of Virginia, whose membership dates back to the year 1885.

I am at present temporarily located in the great metropolis of the Northwest, having decided on a short vacation, visiting my daughter, who resides in this great city of half a million people; and, during my stay, decided to spend the greater part of my vacation

brushing up on general medicine and surgery at the great "Minnesota University," located in this city. I paid my respects to Dean Lyon, of the Medical Department of the University, who did me the great honor and generous courtesy of extending me a complimentary ticket to all of the clinics, also the laboratories, where I found every facility for doing good and skilful work, equally as fine as any medical school that it has been my privilege to attend, both in this country and abroad.

The usual daily attendance in all the various departments of this great University averages between six and ten thousand students. The school is co-educational, with a ratio between the two sexes of about one to three in favor of the males. The medical department has an attendance of over four thousand students, which largely accounts for the full supply of doctors in this great Northwest, as every small town and city has an overflow of M. D.'s. This University ranks about fourth in number compared with Yale, Harvard, Leland Stanford, etc. The buildings and fine grounds, I learned, cost about eight million dollars, besides the great endowment fund, from which to draw. This great sum of money was first raised by the great ore mines and flour mills, the latter giving this city the title of "The Flour City of the World." By the way, the doctors and business citizens of the "Twin Cities," St. Paul and Minneapolis, are beginning to get ready for the entertainment of the A. M. A. meeting next year. There seems to be some jealousy and antagonism between the "Twins." The older twin does not like to be left behind, from a progressive standpoint, while the younger twin is forging ahead and tantalizing her older sister.

Our great old "Mother State," Virginia, needs better and more energetic workers, both in the State Legislature and in the fields, mines and harbors of commerce. If we could exchange about two-thirds of our colored labor for the Norwegian and German laborers and farmers, as is the case in all this great Northwest, our labor problems would be solved. During my two months stay in this State and in Wisconsin, I have not seen as many as half a dozen colored persons. This class of labor is not efficient enough for the people here. All the white people, both men and women, do all of their house work, and they do all mechanical and farm work as well, using tractors and the most modern machinery

for all farming as well as for making of good roads and streets, which means much financially to any high class school or university, or city. The State of old Virginia has just as much undeveloped iron and coal lands, saying nothing of her fine harbors, like Hampton Roads, etc., undeveloped all along the Atlantic Coast and the great Chesapeake Bay. If these natural advantages were more thoroughly developed, as suggested by our young and popular Governor Byrd, the Old Dominion would rise from her long slumber and shine forth in her latest radiance, out-stripping all of her sister States who are now boasting of their great universities with their millions of endowments. So let us, the profession, use our influence toward stimulating our people to higher ambition in excelling all other States in commercial ability.

I am looking forward to a fine program for our next State Medical Society meeting in the "Cockade" city, especially since we have such a live wire President and Secretary to do the main work of the Society. I am invited to attend the Minnesota Medical Society meeting in the city of Duluth on June 30-July 1-2. I hope to return to Washington in due time for the Petersburg meeting in October. No doubt that meeting will be well attended by both the "Tuckahoe" and the great South-Western sections of the State.

Wishing your readers much success, I am,
Very truly yours,
(Signed) B. C. KEISTER, M. D.

P. S.—I beg leave to add as a post-script to my communication, that I omitted to mention about our good "young" friend, Dr. Joseph A. White, whose photograph accompanied the last issue of the MONTHLY.

It was my privilege to show this fine photograph to a number of the distinguished professors, who were near by in the University Library. Many of these seemed to know of Dr. White and his great work as an ophthalmologist.

In conclusion, let me add, this hustling city of half a million people is about the size of Washington, but has but few of our colored race. It is kept cool in the summer by the breezes from the great Mississippi river and the thousands of lakes which freeze over in winter, the temperature being often 20° below zero.

President's Page

Letter of the President to the Members of the Medical Society of Virginia.

DEAR MEMBERS:

The fifty-eighth annual meeting of the Medical Society of Virginia will be held at Petersburg, October 18-20, 1927. There are many attractive features about this meeting that should induce the members to attend.

First of all, and most important, there is an excellent scientific program. The program begins with the night session on Tuesday, October 18th, and continues through Wednesday and Thursday. There will be no session on Friday. The Council abolished the session on Friday, as it is usually poorly attended and it seems unjust to authors to put their papers on Friday when most of the doctors have returned home. There should be a full attendance on the sessions on Tuesday, Wednesday and Thursday, so that all papers should have a good audience. The introduction of the new president will be on Thursday.

The new Constitution and By-Laws become effective at this session. This will introduce many features that will be helpful to the Medical Society of Virginia. Among others, there will be an election not only of a new president, but of a president-elect.

There will be a meeting of the Council at three o'clock and of the House of Delegates at four o'clock Tuesday afternoon, the first day. In this way much of the business can be transacted without conflict with the scientific program.

The addresses of the invited guests will be attractive. Dr. John M. T. Finney, of Baltimore, one of the most noted and most beloved surgeons, will speak on a topic of interest to all medical men. Dr. W. C. Davison, pediatrician of Johns Hopkins and who has recently been appointed dean of the Medical School of Duke University, will give an address on "Empyema in Children Under Two Years of Age." Dr. Stewart R. Roberts, of Atlanta, one of the best known authorities on heart trouble in this country, will speak on "The Rheumatic Heart." Dr. M. L. Harris, of Chicago, who has long been deeply interested in the affairs of the American Medical Association, and who has for years been chairman of its Judicial Council, will give an address

on the beneficial effects of organized medicine.

There will be a reception, supper and dance following the evening program on Wednesday. The evening program Wednesday will consist of addresses by the invited guests.

Ladies are especially invited, and entertainments and local historic tours are being arranged for them.

Each county society should have representation in the House of Delegates, and every county society should organize in advance of this meeting and select a delegate.

There will be a scientific exhibit under the auspices of the Committee on Scientific Exhibit consisting of Dr. Charles Phillips, of the Medical College of Virginia, chairman; Dr. H. E. Jordan, of the University of Virginia, and Dr. John S. Horsley, Jr. Among other features there will be an exhibit of various pathologic specimens and one demonstrating the early stages of embryologic development. These exhibits will be plainly marked and should be of great interest to all practitioners and specialists.

The reports of the newly appointed committees on the training of midwives and on the regulation of technicians for physicians and surgeons will be made at this meeting.

Let us endeavor to make the Medical Society of Virginia the foremost state medical association in the United States. There is no reason why we cannot do this if every member will consider it not only his duty, but a privilege to attend these meetings and to listen to the papers, to participate in the discussions, and to make any suggestions that he thinks are for the good of the cause.

Sincerely yours,

J. SHELTON HORSLEY, *President,*
Medical Society of Virginia.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Health Education Through Women's Clubs

One of the best fields for educational work

for health open to the Auxiliary, lies in women's clubs.

Doctors' wives who have made themselves intelligent about public health principles, and informed about scientific methods of disease prevention, are always being sought for chairmanships of state and county public health committees in parent-teacher associations and women's clubs. These positions offer opportunities for health education which should be welcomed by Auxiliary members.

Missouri offers an example which illustrates this.

Immediately after the organization of the Missouri State Auxiliary, a program for State health work was planned. The steps by which the program evolved were as follows:

(1) A study was made, by a small group of doctors' wives, of state vital statistics, as they reflected general health conditions in the State.

The State Health Department was looked into—its budget, the number and character of its divisions, the type of men filling the positions and the character of their work (The women making the study knew literally nothing about the department or its workings, did not know even the name of the state health commissioner when they started).

(2) They went with their findings to the chairman of the committee on health and public instruction of the State Medical Association, who was able to add materially to their information.

Among the things discovered were that Missouri had a high death and morbidity rate from such preventable diseases as typhoid, that birth statistics were incomplete and inaccurate, that the State Health Department was not adequately financed, and the like; but most important of all, that the State Health Department was trying to push the County Health Unit idea in the state and would welcome help from lay organizations in getting counties educated to the need of full time county health workers, either nurses or county health units.

On the basis of this information a tentative program for State Auxiliary work was planned. Its essentials were to urge county auxiliaries:

(1) To put on study programs covering the fundamentals of personal and public hygiene;

(2) To study their local health conditions;

(3) To study their own county official and non-official machinery for disease prevention and health promotion;

(4) Where there was no full time county health department, to ask the State Health Department to tell them what the county needed and what they could do to improve conditions, and then to do what the department directed; and

(5) To look to the County Health Unit or (if the county had too few people or too little money to justify that) to county health nurses, as the solution of their rural health problem.

This proposed program was approved by the chairman of health and public instruction of the State Medical Association, was accepted by the Auxiliary State Board, and was presented by the chairman of health and public instruction of the State Medical Association to that Association and approved by it. (Not until all these steps had been taken did the Auxiliary officers feel free to go to work).

This official program was later also heartily approved by the State Health Department and has for three years been the basis of State Auxiliary work.

The State Auxiliary president during whose term this program developed was, the following year, appointed chairman of health for the State Federation of Women's Clubs. She immediately planned the Federation work on the same program. Clubs all over the state were put to reading papers on health topics, supplied by her when she was requested to do so. The Federation State Journal carries her articles, at first accompanied by advertisements for Abram's Treatment, "examination free" doctors and dentists, chiropractors and osteopaths. (She quickly laughed the Abram's Treatment out of the advertising pages. The other advertisers are requiring more serious treatment).

Two years of steady plugging have started club women all over the state to thinking about their local health conditions and studying health topics. The idea of looking to the State Health Department for guidance is taking hold. The county health nurse and County Health Unit idea is growing rapidly.

Further, the present president of the State Auxiliary has accepted a similar position with the State Parent-Teacher Association and has been able to carry these same ideas, especially that of the County Health Unit, over into that organization.

Results in actual accomplishments are beginning to appear.

A few months ago, at the request of the State

Health Department, a baby hunt (a birth registration drive) was put on in Missouri by these three organizations (the Auxiliary, the Federation and the Parent-Teacher Association) working together, which resulted in an intensive state-wide educational campaign in the county and city newspapers, and in the discovery of many unregistered babies. This united effort to help get Missouri into the Federal birth registration area is a significant thing, made possible by the influence exerted in the Federation and the Parent-Teacher Associations by Auxiliary workers.

This is but a first step toward tying together the health work done by these and similar organizations and directing that work away from the less essential to the vital and fundamental. —(*Bulletin of Woman's Auxiliary, A. M. A.*)

As we look forward from year to year to the meeting of the State Woman's Auxiliary to the Medical Society of Virginia, there is a feeling of much pleasure at renewing the personal friendships of the years passed. The meeting and associating with the doctors' wives of our own great State has formed ties of friendship that cannot be easily broken.

Attendance upon state conventions has always been looked forward to by the wife as well as the doctor. Since the organization of the Woman's Auxiliary they are doubly so. In the few years of their existence, they have taken a definite place, not only in terms of fellowship, co-operation and loyalty, but in service to their communities and the State. They are a happy combination of work and play, and—who will deny that the wife needs the play time and relaxation as well as the doctor himself? For as they come together at this time, to mix and mingle in social hours and in business meetings, reporting on the work of the year and perfecting plans for the future, they are of mutual encouragement and inspiration to each other.

Those who are not members of the auxiliary are cordially invited to attend and, if your county medical society has not an auxiliary, it is earnestly hoped that you will come to this meeting, get the vision, and be inspired to go home and organize for the benefit of your county, your doctor and his profession.

"Mates for your husbands, staunch and true
As their work you help them do,
Never do you falter, never bend,
Stand you firmly to the end."

The President of each County Medical Society, which has not an Auxiliary, is asked to appoint one or more leading women in his county to attend the meeting of the Woman's Auxiliary to the Medical Society of Virginia in Petersburg, October 18th-20th, with the view of forming an auxiliary to his county society.

The Truth About Medicine

In addition to the articles enumerated in our letter of June 25th, the following have been accepted:

Lederle Antitoxin Laboratories

Erysipelas Streptococcus Antitoxin (Lederle),
Unconcentrated.

NEW AND NON-OFFICIAL REMEDIES

Crotalus Antitoxin.—An antitoxic serum prepared by immunizing animals against the venom of snakes of the crotalus family. Evidence has accumulated to show that the venom of certain snakes may be neutralized by the employment of a serum obtained from animals that have been injected with venom from a snake of the same family. Crotalus antitoxin is used to neutralize the venom injected by the bite of members of the crotalus family. The serum is administered intramuscularly, subcutaneously and in certain cases it may be administered intravenously.

Antivenin (Nearctic Crotalidae)—North American Anti-Snake-Bite Serum.—An antitoxic serum prepared by injecting horses with venoms from serpents of the North American species of the family *Crotalidae* (Rattle Snake, 75 per cent; Copperhead, 12½ per cent; and Water Moccasin, 12½ per cent). It is claimed to have neutralizing effect against the venom of the species represented. The serum is marketed in syringes containing 10 c.c. (a single dose). H. K. Mulford Co., Philadelphia. (Jour. A. M. A., July 2, 1927, p. 29).

Erysipelas Streptococcus Antitoxin (Lederle) Unconcentrated.—An erysipelas streptococcus antitoxin (New and Non-official Remedies, 1927, p. 337), prepared by immunizing horses by subcutaneous injections of the toxic filtrate obtained from broth cultures of the erysipelas streptococcus, or by intravenous injection of cultures of the erysipelas streptococcus obtained from typical cases of erysipelas. It is administered in early cases of moderate severity in dosage of 12 c.c. intramuscularly; in severely toxic and late cases, 36 c.c. to 48 c.c. intramuscularly, or 24 c.c. to 36 c.c. intravenously. This product is marketed in syringes containing 12 c.c. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., July 30, 1927, p. 373).

PROPAGANDA FOR REFORM

Ergosterol.—The present evidence indicates that ergosterol is the precursor of vitamin D, that is, the parent substance from which vitamin D is formed. It is probable that the activity of cholesterol produced by irradiation, is due to the presence of ergosterol in cholesterol. The biologic tests with irradiated ergosterol have been astounding. A daily dose of 0.0001 mg. of irradiated ergosterol has cured and prevented rickets in rats kept on a rachitogenic diet. Irradiated ergosterol is the most potent antirachitic substance known, 5 mg. being equivalent to approximately 1 liter of a good cod liver oil. (Jour. A. M. A., June 18, 1927, p. 1969).

Absorption of Vitamin D Through the Skin.—The antirachitic factor, now commonly designated as vitamin D, which seems to be essential for the

proper development and maintenance of the skeletal structures, apparently is not produced within the living body of man. The necessary supply is ordinarily derived either through the ingestion of antirachitic foods or through exposure of the skin to sunlight or ultraviolet rays. The last mentioned method is somewhat uncertain with respect to precise dosage. The alimentary path of introduction of the vitamin is usually the most convenient method for antirachitic therapy. Sometimes, though rarely, there may be barriers to its use; hence alternative procedures have been looked for. It has been found that the subcutaneous administration of cod-liver oil may lead to curative results attributable to the fat-soluble vitamins. It has now been found that vitamin D as it is secured in irradiated sterols can be absorbed from the uninjured skin. The possibility of antirachitic therapy by inunction is thus presented. (Jour. A. M. A., June 18, 1927, p. 1970).

The "Cass Treatment" Trickery.—The "Cass Treatment for Rheumatism" was a particularly bold piece of Chicago mail-order quackery, conducted under the name "Cass Laboratories." The Cass Laboratories were not laboratories; its alleged president, "Harvey L. Cass", who was featured throughout the advertising, did not exist, but the concern was run by one H. L. Cassel, in association with his brother-in-law, one Joseph V. Creevy. The "treatment" consisted of baking soda tablets, of other tablets containing aspirin and cinchophen, and of some flavored epsom salt, as was shown by an analysis made by the A. M. A. Chemical Laboratory. In October, 1926, the Post Office Department called on the Cass Laboratories to show cause why a fraud order should not be issued against it. In February, 1927, Cassel submitted an affidavit to the Post Office Department, declaring that he was authorized and empowered to execute it on behalf of the Cass Laboratories, and swearing: "That the business heretofore conducted under the name Cass Laboratories has been discontinued and abandoned and will not be resumed at any time in the future". The facts were, that for a month or more before Cassel made this sworn statement, the name "Cass Laboratories" had been abandoned and the rheumatic public was receiving the same line of quackery under a new trade name: "H. L. Cass Corporation". It is to be hoped that in due time the Post Office authorities will issue a fraud order not only against the company itself, but against those conducting it. (Jour. A. M. A., June 18, 1927, p. 1983).

Kerosene.—Kerosene is a weak antiseptic and parasiticide and irritant to the skin. Therefore: It can be used for parasitic affections of the scalp. It is of some use for seborrheic dermatitis of the scalp and, if it has any effect in preventing the out-fall of hair, it is presumably due to its irritating—stimulating—effect on the skin. But it does all these things in a crude, disagreeable way. All of them can be done more efficiently and much more accurately with drugs of definite composition. Its vogue as a hair tonic and hair restorer is largely due to that popular feeling, which has come down through the milleniums from our barbarous ancestors, that the efficiency of drugs is in proportion to their disagreeableness. (Jour. A. M. A., June 25, 1927, p. 2048).

Disgusting Medical Advertising.—The medical profession is now being circularized with an illustration advertising presumably "Proveinase-Midy." The circular shows a disproportionate naked Hercules and a depressed naked female, whom the Hercules seems about to energize with Proveinase." The name Midy has meant little that is inspiring to the American medical profession. Santal-Midy is sandal oil capsules that have been exploited largely by way of posters in public toilets. The ad-

vertising of "Proveinase" merits contempt and resentment. (Jour. A. M. A., July 2, 1927, p. 32).

National Medical Bureau, Inc.—Physicians have been circularized by the "National Medical Bureau, Inc." The letterhead of this concern carries with it the idea that it is a nation-wide organization, having offices in New York City, Chicago and Los Angeles, with a "Division Office" at South Bend, Ind. The circular letter which the "Bureau" sends to a physician states that it is about to appoint a physician in his locality to care for its members. It explains that the appointee would receive remuneration for his services and he is told that if selected, he would automatically be made the family physician in more than 500 homes of the city. Investigation showed that all correspondence was handled from South Bend, Ind., by one A. M. Nadel, who did not divulge the names of the incorporators. The Indiana Department of State declared that it had no record of the National Medical Bureau, Inc. (Jour. A. M. A., July 2, 1927, p. 49).

"Apocactin" and "Pasconia" Merrell.—The Wm. S. Merrell Co. suggests to a physician that he consult the firm's catalogue for "the particular kind of remedial agents for the different pathologic conditions met in daily practice." As an illustration of the advice that may be had from a perusal of the catalogue, three products are mentioned: "Apocactin," "a combination of drugs you don't often encounter," which is stated to contain Hawthorn, Cactus, Apocynum, Avena Sativa and Collinsonia; Fibrogen, a blood coagulant which has not been admitted to New and Nonofficial Remedies; Pasconia, "a sedative and stabilizer in the erratic action of the 'nervous heart'," which is stated to contain Passiflora incarnata, Avena Sativa, and Collinsonia. The drugs that make up "Apocactin" and "Pasconia" are not to be found, either in Useful Drugs or in the United States Pharmacopeia. Some are not even included in the National Formulary, which aims to include preparations of drugs which are supposed to have any usefulness at all. All belong to that larger and ever-growing collection of drugs that have been discarded because they were found to be inert or inferior to other drugs having the same action. The following is the estimate of the Council on Pharmacy and Chemistry as given in the Epitome of the U. S. Pharmacopeia and National Formulary for those drugs constituents of "Apocactin" and "Pasconia," which are included in the National formulary: Passiflora (passion flower), "Exploited by manufacturers of proprietary medicines for the treatment of insomnia, but probably inert." Avena Sativa (oat) "A constituent of certain nostrums; has no place in the materia medica." Apocynum (Canadian hemp) "Cardiac tonic of digitalis group unreliable as to rate of absorption." (Jour. A. M. A., July 2, 1927, p. 50).

Two Obesity Fakes Dodge Fraud Orders.—The Post Office Department called on the Hall Chemical Company, which sells the obesity preparation, Hall's Tablets Triturates—to show cause why a fraud order should not be issued against it. The proprietor of the company submitted an affidavit declaring that the sale through the mails of Hall's Tablets Triturates had been abandoned. Similarly the firm which exploits "Slends," a chewing gum coated with a mixture containing sugar and phenolphthalein, when asked why a fraud order should not be issued for selling Slends through the mails submitted an affidavit declaring that the business of selling Slends through the mails had been discontinued. There is, of course, nothing in the action of either firm to prevent the sale of the products in question through the drug stores. (Jour. A. M. A., July 9, 1927, p. 138).

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Editorial

Calcium Carbonate—Sodium Bicarbonate—Magnesium Hydroxide.

Practitioners have frequent use for alkalis. Any observations that seem to improve our knowledge of this class of remedies should be carefully weighed. In gastric disturbances, in gastric and duodenal ulceration, so-called antacids have been long employed. Probably too freely have physicians and laity used alkalis after meals in order to allay disturbing and unpleasant gastric symptoms. Probably, also, have treatments for gastric ulcer employed too large amounts of sodium bicarbonate and calcined magnesia. Probably again, the laity have fallen into the too free use of soda for the purpose of relieving "heart burn," "sour stomach," "dyspepsia," and other so-called stomach troubles.

In view of this status, it may be well to comment upon any careful observations that may be in current publications pertaining to this subject.

Loevenhart and Crandall (*J. A. M. A.*, vol. 88, No. 20, page 1557), draw attention to calcium carbonate in the treatment of the gastric hyperacidity syndrome, and, in doing so, present some salient reasons for preferring use of this drug over sodium bicarbonate, magnesium hydroxide and carbonate. They give the following specifications as composing an ideal antacid:

1. Insolubility.
2. Non irritating to stomach or intestine.

3. Neutral in aqueous solution and, yet capable of neutralizing acid.
4. Acid-base equilibrium not affected by it.
5. Alkalinization of urine, with attendant phosphatic crystallization, is avoided.
6. Diarrhea and constipation not produced.
7. Mineralization of blood uninfluenced.

Sodium bicarbonate is soluble, it is irritating in high concentration, and may produce alkalosis. Urine is alkalinized by it; this may produce precipitation of phosphates in crystalline form. Renal colic has occurred in persons addicted to excessive "soda-taking." This is one of the dangers noted in the Sippy treatment for gastric ulcer. The use of sodium bicarbonate, alone, for hyperchlorhydria, is attended by only a temporary fall of acid level and is followed by a higher acid than before it was taken. Sodium bicarbonate, alone, is not an ideal antacid; in combination with calcined magnesia, it is considered to be better than alone.

Magnesium hydroxide and carbonate are less soluble than sodium bicarbonate, but the irritation of intestines and cathartic action of magnesium make for unpleasant effects upon the patient. These authors feel that the catharsis as experienced in the Sippy treatment is not desirable. This is a matter for discussion.

In calcium carbonate, alone, these workers find an ideal antacid. They give these reasons:

- (1) When suspended in water it is neutral.
- (2) It neutralizes gastric acid, forming calcium chloride and carbon dioxide.
- (3) It can be given almost *ad libitum*.
- (4) It does not affect the bowels, except when given in very large amounts it makes bulky stools.
- (5) It tends to protect ulcerated surfaces from irritation.

Massive Collapse of the Lung.

This unusual condition of the lung has recently been brought forward in publications and additional cases have been reported. Sante's paper (*J. A. M. A.*, vol. 88, No. 20), calls attention to this subject and presents a suggestion of promise in the treatment.

Sir John Rose Bradford has prepared a general discussion of the subject. Sir John's monograph in Oxford Loose Leaf Medicine (2:127, 1920), treats the condition, based upon

his observations up to and after the war. Other authors have given the subject consideration. Pasteur in 1890 first published observations on massive collapse of the lung, after studying thirty-four cases, following post-diphtheritic paralysis of the diaphragm. Bradford's reported sixteen cases, in 1914, as a complication of 2,000 abdominal operations. Sante notes other observers, but especially calls attention to the roentgen-ray observations of Holmes and Ritvo, noting the belief of these observers, that the condition has been "passed up" as being due to pneumonia. Scott's paper, January, 1925, added four cases.

The association of roentgen-ray examination with physical examination more accurately establishes this unusual condition, which may complicate abdominal operations or may occur without such immediate cause. There may be sudden onset, characterized by pain in the chest region, shortness of breath, rapidity of pulse rate and cyanosis. At first, sputum is scant; later, it is profuse and purulent, but it is not bloody, or like "prune juice." There is slight fever, if any, at first; later, the temperature may go as high as 102° F.

There may be a different assortment of symptoms in some cases and the pulmonary symptoms may assume less prominence and are discoverable only on careful physical examination.

Massive atelectatic collapse of the lung defines itself. Microscopically, the bronchioles and alveoli are collapsed and atelectatic; function less; here and there, a small group of air cells may be inflated. The lung occupies a smaller area, but is not separated from the chest wall; the chest wall being depressed, the heart and mediastinal structures are dragged over to the affected side, and the diaphragm is drawn upward by the affection.

Roentgenographically there is some difficulty in diagnosing this condition from pneumonia, but the narrowing of chest on the involved side, the approximation of the inter-spaces, the elevation of the diaphragm, and displacement of heart and mediastinal structures toward the affected side, afford points of differentiation. The cause of massive atelectatic collapse of the lung is not definitely known, although it is a definite clinical entity, occurring probably more often than it has been recognized. As it is more carefully ob-

served, the causes and associations of it may be more thoroughly understood. It seems quite probable, according to Sante, that some injury to the vagus may be the cause of temporary collapse of bronchioles, which affords an approximation of the wall of the bronchioles. Apposition and cohesion of collapsed walls brings about therein an atelectatic state in bronchioles and alveoli.

Sante suggests that rolling the patient back and forth on the involved side is a potent remedy; that bronchoscopic removal of mucus is more risky and more difficult.

Trachoma.

A round table discussion of any disease problem is helpful. In the search for etiologic influences of public health problems, such a consideration is particularly advantageous. One may obtain this angle on the question of trachoma, in perusing a paper by Royer (*J. A. M. A.*, August 14, 1926), and the discussion thereon. It is profitable in the interest of general information to take up a new hypothesis, as Royer has done, and to work it in with what has heretofore been tentatively accepted as probably the basic factors operating in the widespread incidence of disease. As late as 1925, a general "round up on the question of the contagiousness and transmissibility of trachoma was undertaken by responsible bodies of investigators. The results of these studies have not been altogether conclusive as noted by Royer. Confusion is found in the question of cause. Is the disease bacterial or parasitic in origin? Is it a food deficiency disease? Is it caused by both factors, poor nutrition and bacterial folliculosis?

PATHOLOGICAL SYMPTOMS: Trachoma is a folliculosis of conjunctival tissue. The disease is first observed in the lining of the upper lid. There is thickening and marked subepithelial inflammation. This increases and spreads; it may involve both lids.

Subepithelial lymphoid structures multiply. Surface epithelium becomes thin and papillae project above the surface. Later the meibomian glands become involved. Multiplication and overgrowth of folliculous tissues, overcrowding epithelium, results in a separation of this layer and a discharge through these openings of material from broken down follicles. About these, granulations of raspberry like masses are formed. Itching, winking ro-

tation of the eye, and eye pains are symptomatically prominent.

In the late stages of fibrosis and scarring, deformities of the lids and lashes make for distress of various sorts and bring about distortions. The disease is slow in progress, involving years.

GEOGRAPHIC DISTRIBUTION.

It is a disease of widespread incidence. In Egypt, Palestine, China, Russia, Hungary, Poland, the Balkans, Japan, Mexico, trachoma is a serious medical problem. In the United States, it is likewise found. Incidences of trachoma in mountain people, native white, in the Appalachian country of eastern Kentucky, West Virginia, Virginia, Tennessee and North and South Carolina, is high. American Indians show 22 per cent of trachoma in 59,000 examined in 1912, but now 12 per cent is thought to be a fair estimation of its incidence among Indians.

News Notes

To The Component Organizations of the Medical Society of Virginia!

A special meeting of the House of Delegates of the Medical Society of Virginia is called by the President for 4 P. M., Tuesday, October 18th, in the High School Building, Petersburg, Va.

Reports of Special and Standing Committees will be called for at this meeting. The purpose of this meeting is to expedite the scientific program.

All component organizations will please elect their delegates and instruct them to be at Petersburg for the above named meeting.

Petersburg Meeting, Medical Society of Virginia.

Petersburg doctors have been busy preparing for our fifty-eighth annual meeting and it is needless to say that everything will be in "apple-pie" order when the Medical Society of Virginia meets there, October 18, 19 and 20. The letter by our president, Dr. J. Shelton Horsley, of Richmond, in this issue, brings out many points of interest with regard to the meeting. Programs will be issued toward the end of this month. In addition to the regular sessions of the society, there will be a meeting of the Pediatric Society, organized at the Norfolk meeting, and also of the Virginia Hospital Association, recently organized in Roanoke.

Each component society is urged to be represented in the House of Delegates, the business body of the Society. This year there may be one delegate for each fifty members in a society or major fraction thereof, provided that each society has at least one delegate. Societies composed of more than one county will be entitled to one delegate for each county included in such society.

There will be the usual golf tournament on Tuesday, a reception, buffet supper and dance on Wednesday evening—the one on which we will have papers by our invited guests—and entertainment for the ladies.

Those attending should make hotel reservations in advance, and the chairman of Hotel Committee, Dr. E. L. McGill, will attend to these upon request. The Petersburg Hotel offers single rooms from \$2.00 to \$3.50, the Jefferson and the Savoy Hotels at \$1.50 to \$2.50, and the Chesterfield at \$1.50 to \$2.00.

Members of the Rotary, Kiwanis and Lions Clubs and other civic organizations will placard their cars, "WELCOME MEDICAL SOCIETY OF VIRGINIA," and members will be given free transportation to any point in the city by hailing one so marked.

The ladies have planned a most attractive program from a luncheon to the executive board of the Auxiliary on Tuesday, to a theater party on Thursday evening, and all doctors are urged to bring their wives and daughters. The full program for the ladies will appear in the State Society's program.

The following chairmen of the various local committees will gladly furnish any information requested:

GENERAL CHAIRMAN—Dr. J. Bolling Jones.

RECEPTION AND AUTOMOBILES—Dr. L. S. Early.

BADGES, PRINTING AND PUBLICITY—Dr. Wright Clarkson.

GOLF—Dr. W. P. Hoy.

FINANCE—Dr. William F. Drewry.

ENTERTAINMENT—Dr. Mason Romaine.

COMMERCIAL AND SCIENTIFIC EXHIBITS—Dr. Wm. C. Powell.

HOTELS AND MEETING HALL—Dr. E. L. McGill.

LADIES—Mrs. E. J. Nixon.

Much Work to be Done.

Now that the play season of the year is about over, we are all returning home with the feeling that "there's no place like home," and

also with the thought that there is much work for each of us to do.

One of the urgent needs of all members of the Medical Society of Virginia is to lend their cooperation to make our Society one of the best. Our component societies need to be more active, and we can help in putting this over by regular attendance and taking a part in the discussions at the meetings. It is human nature to be much more interested in anything in which we put our money and time. By the way, we hope this may be a reminder to those who have not paid their annual dues that "now is the accepted time."

Component societies which have not elected delegates to the Petersburg meeting are requested to attend to this promptly and urge their delegates to attend and take an active part in the business sessions. Each delegate should be instructed to make a report on the State Society meeting at a meeting of his component society, shortly thereafter.

Go after the eligible doctors in your section and get them to join and attend your meetings, and let's make next year the best in our history.

Additional Licensees of the Virginia State Board of Medical Examiners.

In addition to the list of licensees who were granted certificates from the Board for having taken the full examinations, publish in the August MONTHLY, the following were granted licenses to practice in Virginia by reciprocity:

Dr. Samuel A. Anderson, Richmond, Va.
 Dr. Ernest B. Bowery, Johnson City, Tenn.
 Dr. Wm. C. Brice, Stonega, Va.
 Dr. E. S. Claytor, Jr., Philadelphia, Penn.
 Dr. Hugh W. Clement, Toms Creek, Va.
 Dr. D. Linwood Fleshmen, Hemphill, W. Va.

Dr. Herbert L. Freeland, Richmond, Va.
 Dr. Wm. Hollister, Washington, D. C.
 Dr. Jay S. Liebman, Newark, N. J.
 Dr. C. Herbert Marshall, Jr., Washington, D. C.

Dr. Ivan B. McEachin, Morgantown, W. Va.
 Dr. Andrew Pugh, Portsmouth, Va.
 Dr. Herbert L. Shinn, Norfolk, Va.
 Dr. Harold C. Thornton, Birmingham, Ala., and

Dr. C. L. Woodbridge, Montreat, N. C., on practical examination.

The Augusta County Medical Association

Held its regular tri-monthly meeting at

Crafton Park, Staunton, August 3rd, followed by a dinner. The principal order of business at this meeting was the election of officers, which was as follows: President, Dr. J. F. Fulton, of Staunton; vice-presidents, Dr. Guy R. Fisher and Dr. Franklin Hanger, of Staunton, and Dr. R. S. Griffith, of Basic City. Dr. W. F. Hartman, of Staunton, R. F. D. 7, was re-elected secretary, and Dr. T. M. Parkins, of Staunton, treasurer.

The Warren, Rappahannock and Page Medical Society

Held its regular meeting at Flint Hill, August 9th, with Dr. E. L. Grubbs, of Front Royal, presiding. Dr. D. M. Kipps, of the same place, was at the secretary's desk. Several interesting papers on "Gastro-enteric Diseases of Infancy and Childhood" were read and discussed by members. The following delegates and alternates were elected to represent this society at the Petersburg meeting of the State Society: Dr. L. F. Hansbrough, with Dr. Giles Cook as alternate, from Warren County; Dr. E. R. Browning, with Dr. James G. Brown as alternate from Rappahannock County, and Dr. George H. Long with Dr. B. C. Shuler, as alternate, from Page County.

Arlington County Medical Society.

At the meeting of this Society, on August the 11th, Dr. W. Calhoun Stirling, of Washington, D. C., read a paper on "Pyelitis: Its Prevalence and Treatment," and Dr. Edmind J. Horgan, also of Washington, reported a case of "Thrombo-angitis Obliterans." At the business session, Dr. R. N. Sutton, Clarendon, was elected delegate, and Dr. W. C. Welburn, Ballston, alternate to represent this society at the Petersburg meeting of the Medical Society of Virginia.

Dr. H. A. Hornthal, Potomac, is president, and Dr. B. H. Swain, Ballston, secretary-treasurer of this society.

The Patrick-Henry Medical Society.

At a meeting held recently, elected Dr. R. R. Lee, Martinsville, president, and re-elected Dr. H. G. Hammond, also of Martinsville, secretary-treasurer. Dr. J. T. Shelburne, of Critz, and Dr. J. L. Blanton, of Fieldale, were elected delegates to the Petersburg meeting of the State Society. Mrs. J. M. Shackelford, Martinsville, was appointed to attend the State Society meeting, with a view to getting ideas for organizing a Woman's Auxiliary to

this local society. Dr. E. B. Noland, Bassetts, was recently elected a new member. The society meets quarterly.

Belgium Makes New Child Labor Restrictions.

In April of this year Belgium passed a law prohibiting the employment of children under sixteen in theatrical establishments, music halls, places of night amusement, and similar establishments. In exceptional cases exemptions may be permitted by the minister of labor and social welfare for employment in theatrical establishments. This law also prohibits children under sixteen from offering any articles for sale in such places of amusement, in public establishments, and in the streets.

Dr. Harry D. Law,

Nitro, W. Va., of the class of '17, Medical College of Virginia, went abroad with the members of the American Legion, early in September. While abroad, he expects to take a post-graduate course in Vienna.

Dr. and Mrs. G. A. Ezekiel,

Richmond, Va., are home again after a visit to Baltimore and a motor trip through the Valley of Virginia. While away, Dr. Ezekiel also attended an encampment at Camp Meade, Md.

Superintendent of West Virginia Hospital.

Dr. James W. Hartigan, Morgantown, W. Va., was recently appointed by the governor as superintendent of the Weston, W. V., State Hospital, to succeed Dr. Mortimer D. Cure. He has already entered upon his duties there.

Dr. Ray A. Moore

And family, Phenix, Va., have been spending the summer in Boston, where Dr. Moore has been doing post-graduate work. They motored up the latter part of May by way of the Valley of Virginia, Harrisburg, Pa., Niagara Falls, and Albany.

Dr. Moore expects to return to Virginia about the first of October and will locate in Farmville, Va., on his return.

Vacation for Children Who Cannot Go to the Country.

New York City has 300 vacation playgrounds this summer—an increase of 100 over the number conducted last year. Besides the regular vacation playgrounds of the board of education, this number includes supervised open-air playgrounds established in school athletic fields, playground annexes organized in co-operation with various institutions and

settlement houses, and twenty-five summer playschools for all-day care of children. The playschools are conducted between the hours of 9 A. M. and 5 P. M., at various institutions daily, during the vacation period. The pupils of these schools are children who are suffering from curable physical ailments, including malnutrition, and children whose parents are absent from home all day. Food, medical attention, and nursing are supplied by various city departments and nursing committees, and a limited number of teachers are furnished by the board of education.

The Child Study Association of America conducts playschools as a special project to prove not only that the city child who cannot go to the country in summer can have both an enjoyable and a profitable vacation but that existing institutions such as schools, hospitals and settlements can be used to this end.

Dr. Mallory S. Andrews,

Who has spent the past year at Johns Hopkins Hospital, Baltimore, has returned to Norfolk, Va., and is now resident house surgeon at St. Vincent's Hospital, that place. Dr. Andrews is an alumnus of the University of Virginia in the class of '25.

The American Association of Obstetricians. Gynecologists and Abdominal Surgeons

Will hold its annual meeting at Asheville, N. C., September 15-17, under the presidency of Dr. John Osborn Polak, of New York. Dr. James E. Davis, of Detroit, Mich., is secretary.

Mr. Wortley F. Rudd,

Dean of the School of Pharmacy of the Medical College of Virginia, was elected a member of the executive committee of the American Association of Colleges of Pharmacy, at its meeting in St. Louis, Mo., in August.

Dr. Guy Hinsdale

Has returned to his home at Hot Springs, Va., after spending the summer at Kennebunkport, Maine.

Dr. and Mrs. E. B. Nuckols

And their two children, of Cumberland, Va., have returned home after spending their vacation at Virginia Beach, Va.

The Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, Va., announces that, at their staff meeting on September 19th, they will have as invited guests Dr. Wm. Thornwall Davis, of Washington, D. C., who will speak on "Glau-

coma," and Dr. Samuel Iglauder, of Cincinnati, O., whose subject will be "Iodized Oil in the Diagnosis of Broncho-Pulmonary Conditions." The latter paper will be illustrated with lantern slides.

East River Pier School in New York City.

The board of education and the board of health have united in establishing on East River Pier, New York City, a school for children suffering from malnutrition and incipient or arrested tuberculosis. Although the pupils take the regular work for their particular grades, they have much individual attention. All are examined once a term by the physician, and an effort is made to see that each child who needs it receives health care. Three warm nourishing meals are served daily. Pupils suffering from malnutrition are returned to regular schools on reaching normal condition, but children assigned because of disease are released only on order of the physician in charge.

Dr. H. C. Grant

Announces his removal from Norfolk, Va., to Smithfield, Va., where he will continue the practice of his profession.

Dr. and Mrs. E. C. Levy,

Tampa, Fla., spent their vacation this year at Chimney Rock, N. C. They motored up, stopping at several places. Dr. Levy was formerly in charge of the health department in Richmond, Va., and now holds a similar position in Tampa, Fla.

The American College of Surgeons

Will hold the seventeenth Clinical Congress in Detroit, October 3-7. Headquarters will be at the Book-Cadillac and Statler Hotels, and the meetings will be held at the Statler Hotel and Orchestra Hall. The Hospital Standardization Conference will extend from Monday morning to Thursday afternoon and will include a discussion of hospital and nursing problems and hospital demonstrations. Monday evening's program will include an address of welcome by the local chairman, the address of the retiring president, the inaugural address of the new president, and the John B. Murphy oration. Clinics in general surgery will be held in the Detroit hospitals each morning from Tuesday to Friday, and in Eye, Ear, Nose and Throat work the same afternoons. Clinics will also be held at University Hospital, Ann Arbor, Tuesday to Thursday. On Tuesday and Wednesday mornings and afternoons, and on Thursday

morning, clinical demonstrations will be held at the Statler Hotel (mornings) and Orchestra Hall (afternoons). On Thursday afternoon the annual meeting of the Governors and Fellows will be followed by a cancer symposium. On Friday afternoon there will be a symposium on traumatic surgery, to be participated in by leaders in industry, labor, indemnity organizations, and the medical profession. On Tuesday evening the program will take the form of a celebration of the Lister Centennial. On Thursday evening there will be a large Community Health meeting in the Masonic Temple, and on Friday evening the Annual Convocation of the College.

Other outstanding features will be the exhibits. In addition to the commercial exhibits there will be a replica of the Lister exhibit at the Wellcome Museum of Natural History, London, including Lister's operating rooms and hospital wards. The Departments of Hospital Activities, of Literary Research, and of Clinical Research of the College will also present exhibits. Among the foreign guests will be Sir John Bland Sutton, England; J. M. Munro Kerr, Scotland; Gordon Craig, Australia; Gustaf E. Essen-Moller, Sweden; S. A. Gammeltoft, Denmark. The retiring President is W. W. Chipman, Montreal, and the President to be inaugurated, George David Stewart, New York. The Lister oration will be delivered by W. W. Keen, Philadelphia. The chairman of the Detroit Committee on Arrangements is Alexander W. Blain.

Dr. R. A. Bennett,

Bedford, Va., has been elected chairman of the Bedford County Democratic Committee.

Dr. and Mrs. Victor C. Vaughan,

Of Detroit, Mich., celebrated their golden wedding anniversary in August. Dr. Warren Vaughan, Richmond, Va., was with his parents on this occasion.

More Playgrounds for Great Britain.

An appeal signed by the Duke of York, president of the National Playing Fields Association of Great Britain, calls for £1,000,000 and many acres of land for recreational purposes, "to provide the whole community with adequate playing fields, especially the 4,000,000 boys and girls of elementary-school age." In response to the appeal, the king has given six acres of the Royal Paddocks of Hampton

Court for a playground, which will be known as the King's Fields, and the Carnegie Fund trustees have made a grant of £200,000.

The Virginia Hospital Association.

A number of hospital representatives met at The Patrick Henry Hotel in Roanoke, Va., July 21st, 1927, and discussed the advisability of a hospital association in Virginia. Dr. J. M. Shackelford, of Martinsville, was elected president of the temporary organization and Dr. A. P. Jones, of Roanoke, Secretary. The next meeting to complete the organization will be held in Petersburg during the State Society meeting.

The following members were present at the Roanoke meeting:

Dr. F. H. Smith, Abingdon,
Dr. E. L. Lawrence, Roanoke,
Dr. T. J. Hughes, Roanoke,
Dr. J. B. Williams, Richmond,
Dr. S. S. Gale, Roanoke,
Mr. M. H. Coleman, Richmond,
Dr. W. C. Akers, Stuart,
Dr. A. P. Jones, Roanoke,
Dr. J. M. Shackelford, Martinsville.

Married.

Dr. Wyatt Sanford Beazley, Jr., and Miss Ruth Randolph Walker, both of Richmond, Va., September 3.

Dr. Staige Davis Blackford, University, Va., and Miss Lydia Harper Fishburne, of Charlottesville, Va., in New York, August 20. Dr. Blackford is returning to the University this Fall, after having been at the Massachusetts General Hospital, Boston, for the past two years.

Dr. Palmer A. Shelburne, of the class of '27, Medical College of Virginia, now at the U. S. Marine Hospital, Baltimore, Md., and Miss Ruth Elfreth Friend, Richmond, Va., August 27.

"The Country Doctor."

The Pathe Exchange, Inc., announces that this picture will shortly be shown at leading theatres throughout the United States and is dedicated to the doctors of America. This picture features Rudolph Schildkraut, the famous character actor, and critics state that the production will go down in motion picture history as an outstanding feature production.

The Southern Medical Association

Is to hold its twenty-first annual meeting in Memphis, Tenn., November 14-17, 1927, under the presidency of Dr. J. Shelton Horsley, of Richmond, Va. An interesting meeting, scientifically and socially is being prepared. Memphis has a modern and complete convention

auditorium and it is stated that the greater part of the convention activities will be held under this one roof. Information as to details may be obtained from the secretary-manager of the Association, Mr. C. P. Lorz, Empire Building, Birmingham, Ala.

Erratum.

In our August issue, we incorrectly stated that Dr. H. D. Howe is chairman of the committee, recently appointed by Dr. Horsley, president of the Medical Society of Virginia, to investigate matters concerning the training of midwives in Virginia. The chairman of this committee is Dr. Greer Baughman, of Richmond. Dr. Howe is, however, a member of the committee.

Motion-Picture Censorship in Hungary.

Laws enacted in Hungary in 1924 and 1925 provide for censorship of all motion pictures by a special national board, and only those films passed upon may be produced in public. In approving a film, the board must state whether it is suitable to be presented before persons under eighteen years of age, and when a film has been rated as unfit for children the theaters showing it must display above the entrance a sign to that effect. In addition, a statement with regard to its character must be made in the preliminary announcements of the film.

Children under five years of age may not be admitted to theaters unless accompanied by adults.

Dr. John P. Haller,

For sometime past located at Pocahontas, Va., has moved to Langhorne Place, Salem, Va.

The American Roentgen Ray Society

Will hold its annual meeting in Montreal, Canada, September 20-23, under the presidency of Dr. A. H. Pirie, of that city. The Mount Royal Hotel will be headquarters for this meeting. Dr. Charles L. Martin, of Dallas, Texas, is secretary of the Society.

Dr. Ward C. Curtis,

Who was last year connected with the staff of Central State Hospital, Petersburg, Va., has moved to San Angelo, Texas, for the practice of his profession. Upon graduating from the Medical College of Virginia in 1920, Dr. Curtis interned for a year at St. Vincent's Hospital, Norfolk. Since that time he has taken post-graduate work in Chicago, New York and Philadelphia, and practiced for a year at Remington, Va.

Dr. A. W. Kelly,

Of the class of '26, Medical College of Virginia, after a year's internship at Mercy Hospital, Baltimore, Md., has located at 1412 Light Street, that city.

Former Illinois Doctors, Attention!

Doctors who lived formerly in Illinois, or who are descendants of pioneer physicians of the "Illinois country" will hear with interest that Volume One of the "History of Medical Practice in the State of Illinois" is ready for delivery.

The History has been written under the supervision of a committee appointed by the Illinois State Medical Society as a commemoration of its seventy-fifth anniversary but more especially to make a living tribute to those valiant men of the medical profession who played so able a part in the exploration, settlement and development of the Illinois country.

This History of medical practice in the State of Illinois, embodies in the course of its narration, an interesting and illustrated digest of the early efforts of white settlers in Illinois, with specific allusion to the share in these tasks, performed by medical men. Included are portraits of rare interest, reproductions of historic documents, excerpts from diaries, personal letters, human reminiscences of days fraught with peril, filled with hope, and not devoid of humor, through a period of about 250 years. Attics, family albums, safe deposit vaults, and state records have been ransacked to produce the material needed for this chronicle, which is a miniature encyclopedia of scientific advance in the Illinois country, which formerly included the territory of about six of the Central States.

The edition is limited. It will not be reprinted. A place in every physician's library is merited by this volume, both as a tribute to the men who blazed the trail for modern scientific medicine and as an ever-present reminder and authority as to the great advances being made in medicine every day. Volume One is now ready. Volume Two will follow soon. Future years will bring other volumes so that this History will be an ever virile monument to the men and incidents whom it would honor. Orders may be sent to Committee on Medical History, Illinois State Medical Society,—Medical & Dental Arts Building, 185

North Wabash Avenue, Chicago, Illinois,—Charles J. Whalen, M. D., Chairman.

Dr. J. A. Newcome,

Of the class of '25, Medical College of Virginia, has moved from Rossmore, W. Va., to Hurricane, W. Va.

Restoring Belroi, Home of Walter Reed.

"Belroi," the birthplace of Walter Reed, was purchased last winter by the Walter Reed Commission of the Medical Society of Virginia and the work of restoration of the house, which was in a wretched state of decay, is nearing completion. There remains to be erected a fence around the property and also the re-building of the log kitchen. As no money was given by the Society for repair work, the Commission is making an appeal for \$3,000.00, with which to pay for this work.

That we may not fail in putting over this memorial, the Commission is asking for individual subscriptions with which to meet the indebtedness. Checks should be made payable to "Walter Reed Memorial Commission" and sent to Dr. Clarence Porter Jones, Secretary-Treasurer, Newport News Va.

The American Public Health Association

Is to hold its annual meeting in Cincinnati, Ohio, October 17-21, and an interesting program has been prepared. Railroads will grant the usual reduced rates to members and fellows going to Cincinnati. Any information with regard to railroad certificates and other matters pertaining to the meeting may be obtained from Homer N. Calver, Executive Secretary, 370 Seventh Avenue, New York City.

Children of Lepers Given Normal Surroundings.

In 1925 a plan for saving the uninfected children of the Culion leper colony in the Philippines was instituted by the office of the public-welfare commissioner at Manila. In order to prevent these children from contracting leprosy from their parents they are removed from the colony and placed in institutions or private homes. By January, 1926, 285 children under fifteen years of age had been removed. The youngest children are cared for in a public nursery near Culion, and if it is not possible to place the older ones with relatives or friends they are put in institutions where their care can be supervised by the office of the commissioner. Periodical health examinations are given to detect any early signs of leprosy which may appear.

School training is provided, and as far as possible the children are being prepared for happy, useful lives. They are encouraged to correspond with their parents, who are advised by monthly reports from the institutions of their progress. This correspondence is deemed safe, since all letters sent from the leper colony are thoroughly disinfected.

The discovery of a cure for leprosy makes possible the hope that the children may eventually be restored to their parents.

Dr. William S. Snyder, Jr.,

Of St. Louis, Mo., has been critically ill at Mercy Hospital, Baltimore, Md., for some time. Dr. Snyder was married to Dr. Grace B. Rollins, of Richmond, Va., June 25th.

Dr. and Mrs. D. B. Stuart,

Of Dublin, Va., have moved into their new home on Maple Avenue, that place, and state that it was built with "the latch string hanging on the outside" for their friends.

Dr. Blanton P. Seward

Returned to his home in Richmond, Va., early in August, after a visit of several weeks at Mayo Clinic, Rochester, Minn.

The Inter-State Post-Graduate Assembly of North America

Will be held in Kansas City, Mo., October 17th to 20th, inclusive, and pre-assembly clinics will be held on October 14th and 15th. Dr. William B. Peck, Freeport, Ill., is managing director of the Assembly, and Dr. G. W. Crile, of Cleveland, Ohio, is chairman of the Program Committee.

Dr. and Mrs. Don Preston Peters,

Lynchburg, Va., motored to Rochester, Minn., last month, where Dr. Peters expected to attend the Mayo Clinic.

Dr. J. Blair Fitts,

Richmond, recently suffered some bruises and cuts about the head in an automobile collision near this city.

Bolsheviki Higher Mathematics.

Each year has	365 days
If you sleep 8 hours a day, it equals.....	122 days
This leaves	243 days
If you rest 8 hours a day	122 days
This leaves	121 days
There are 52 Sundays	52 days
This leaves	69 days
If you have Saturday half-holiday	26 days
This leaves	43 days
If you have 1½ hours for lunch	28 days
This leaves	15 days
Two weeks vacation	14 days
This leaves	1 day
This being Labor Day, no one works.....	1 day

—The Medical World.

Dr. Charles W. Putney,

After a post-graduate course in Philadelphia, announces the opening of his offices in the Professional Building, Staunton, Va., for the practice of surgery and gynecology.

Consolidation of Two Well Known Drug Firms.

The consolidation of Merck and Company, of New York, N. Y., and the Powers-Weightman-Rosengarten Company, of Philadelphia, July 1st, brought together two of the oldest chemical establishments in the United States. The name of Merck has been identified with the chemical industry since the seventeenth century, and Powers-Weightman-Rosengarten Company date back to 1818. Mr. George W. Merck, son of the founder of Merck and Company, is president, and Mr. Frederic Rosengarten is chairman of the board of directors. The main office of the new company is at Rahway, N. J., and there are branch offices in Philadelphia, New York, St. Louis and Montreal. The works are at Philadelphia and Rahway. We extend our good wishes to the consolidated firm.

The American Hospital Association

Will hold its annual meeting in Minneapolis, Minn., October 10th to 14th, under the presidency of Dr. Richard G. Brodrick, of Oakland, Calif. Headquarters for this meeting will be the Municipal Building which seems especially planned for these large conventions. There will be a large number of exhibitors and an excellent program has been arranged. The Pre-Convention Number of *The Bulletin of the American Hospital Association*, issued during the summer, gave a number of attractive pictures of the convention city and gave many interesting facts about the Association. Additional information about the meeting may be obtained from the executive secretary, Dr. William H. Walsh, 18 East Division Street, Chicago, Ill.

The U. S. Civil Service Commission.

Washington, D. C., announces an open competitive examination for Assistant Chemist, for the Departmental Service in Washington, D. C., and positions requiring similar qualifications for duty in the field. Applications must be on file with the above named Commission not later than September 27, 1927.

Applications for bacteriologist must be on file with the Commission in Washington, D. C., not later than October 4.

Dr. George Hankins,

Williamsburg, Va., is out again after undergoing an operation for appendicitis at Buxton Hospital in Newport News, Va.

New Hospital Building Under Construction.

Work has been begun on the new building for the Mary Washington Hospital of Fredericksburg, which is to be erected at a cost of about \$85,000. The new building is being erected on the site of the old hospital and during the period of construction the hospital is being housed at the Maury Hotel. It is expected to have the new building ready about next May.

The Southwestern Virginia Medical Society

Will hold its semi-annual meeting in Bristol, September 22nd and 23rd, under the presidency of Dr. Z. V. Sherrill, of Marion. Dr. E. G. Gill, Roanoke, is secretary-treasurer. There will be a symposium on "Pulmonary Tuberculosis" and many interesting volunteer papers as well.

Dr. C. O. Foree,

Recently of Pocahontas, Va., has moved to Athens, Tenn.

Boy Scouts of the Kingdom of Siam.

The eighth annual report of the Boy Scouts' Organization in the Kingdom of Siam for the year 2466 (reckoned from the birth of Buddha and equivalent to 1924 A. D.), recently received by the Children's Bureau, gives an interesting account of scout activities in Siam. At that time the organization had a membership of 32,544.

Dr. I Keith Briggs,

South Boston, Va., left early in September for Chicago, where he will take up post-graduate work in surgery. He will also attend the Mayo Clinic while away.

Dr. and Mrs. R. H. Rowe

And family have recently returned to their home at Exeter, Va., after a vacation spent at their former home, Hickory, N. C. Dr. Rowe has been for the past several years physician for the Stonega Coke and Coal Company, at Exeter, Va.

Dr. R. L. Hudgins,

Farmville, Va., is spending several months in New York City, where he is taking post-graduate work in obstetrics and diseases of children.

Dr. Richard H. Meade,

Of Richmond, Va., former medical missionary to China, has been appointed assistant

professor in surgery and gynecology at the University of Virginia, effective this fall. He studied medicine at the University of Virginia and Harvard University Medical School, graduating from the last named. He later entered the mission field and was stationed at St. James Hospital, Anking, China, for three years.

Attention!

If you are interested in one of the best small town and country practices in Virginia, write to Dr. Ray A. Moore, Harvard Medical School, Boston, Mass.—(Adv.)

Obituary

Dr. Sparrell Simmons Gale.

On the 19th of August the city of Roanoke and Southwest Virginia were shocked and saddened by the news of the death of S. S. Gale, beloved physician, prominent surgeon, loyal citizen, true friend and Christian gentleman. Dr. Gale was prominent in medical societies, having been president of the Roanoke Academy of Medicine, The Southwest Virginia Medical Society, The Tri-State Medical Society. At the time of his death he was Chief Surgeon of the Norfolk & Western Railway. He leaves behind a large host of friends and patients who loved him sincerely:

Speak not of him as dead,
This friend of yours and mine,
Nor stand with drooping head
And for his presence pine;
He has but burst his mortal shell
And gone on home, loved ones to tell
That all the world is going well
And everything is fine.

'Tis true, we loved him well,
This friend, both tried and true,
And you can comfort me
And I can comfort you
With thoughts of how he's gone before
To some far-distant blissful shore,
Where with those other friends of yore
Old friendships he'll renew.

Think not of him then, dead,
But think of him as free
From earth, and garbed instead
In robes of purity;
Not fettered now by time and space,
But moving on with time apace,
With other mortals, saved by grace,
In Immortality.

G. M. MAXWELL.

Dr. Gale was born in Salem, Va., July 20, 1876. Upon completion of his academic education, he studied medicine at the College of

Physicians and Surgeons of New York City, from which he graduated in 1901. He had been a member of the Medical Society of Virginia since 1903 in which he served one term as a member of its executive council. His wife and three children survive him.

Dr. Scott William Brewer,

Beloved physician of Rockingham County, died at his home at Singer Glen, Va., June 6, death being due to angina pectoris. Dr. Brewer was born in Rockingham County, sixty-eight years ago, and after attending Randolph-Macon College and the University of Virginia, studied medicine at the Medical College of Virginia, receiving his degree from that school in 1885. Later he took a post-graduate course in New York. Dr. Brewer was active in his local medical society, was for some time a member of the Rockingham County Board of Health, was a member of the Medical Society of Virginia, and an Odd Fellow. His wife and a son survive him.

Dr. E. W. Walker,

Appalachia, Va., was drowned in Powell's River, a few miles below Big Stone Gap, while fishing, on August the 19th. The boat capsized and Dr. Walker attempted to save one of the men, but both were drowned. His body was taken to his old home, Manchester, Ky., for burial. Dr. Walker was 36 years of age and graduated from the University of Louisville, School of Medicine in 1915. He had been for some years a member of the Wise County Medical Society and the Medical Society of Virginia. His wife and four children survive him.

Dr. George W. Stark,

A prominent physician of Albemarle County, Va., died suddenly, August 15th, while on his way to see a patient. He was born in Essex County, Va., 73 years ago and graduated in medicine, from the Washington University, Baltimore, in 1877. He had been a member of the Medical Society of Virginia since 1885. His wife and a daughter survive him.

Dr. William Thomas Swanson,

Of Callands, Va., died August 5th at a hospital in Danville, Va., death being due to pneumonia, though he had not been in robust health for a year. Dr. Swanson was 73 years of age and graduated from the College of Physicians and Surgeons of Baltimore in 1877. He was a member of the Pittsylvania County and Danville Medical Society and was at one time a

member of the Medical Society of Virginia. His wife died a number of years ago and he had no children.

Dr. William T. Erwin,

Senior assistant surgeon at the National Soldiers Home, Hampton, Va., died suddenly, August 25th, while walking through the grounds. He was 55 years of age and a graduate of Chattanooga Medical College of the class of '97. He had been connected with the National Soldiers Home in this State for the past six years. His body was taken to his former home in Tennessee for interment. His wife and two sons survive him.

Dr. Robert Porter,

Of Roanoke, Va., died at his home in that place, August 14th, at the age of 37 years. He was formerly of Rural Retreat, Va., and studied medicine at Vanderbilt University, Nashville, Tenn., from which he graduated in 1907. His wife and a son survive him.

Dr. Leonard Wood,

Governor General of the Philippine Islands, died at Peter Bent Brigham Hospital, Boston, August 7th, at the age of 66 years. He graduated from Harvard University Medical School in 1884 and was appointed assistant surgeon in the medical corps of the U. S. army in 1886. He achieved distinction as a line officer as well. Following the Spanish-American War, he was appointed military governor of Cuba and greatly assisted the special commission appointed to investigate the transmission of yellow fever. He was active in his work for his country and was honored in many ways.

Dr. H. Edwin Lewis,

Managing editor of *American Medicine*, died August 6th, at his home in Ossining, N. Y., at the age of 52 years. Always of a literary turn of mind, he became editor of the *Vermont Medical Monthly*, shortly before his graduation from the University of Vermont in 1897. He later moved to New York and was for two years editor of the *International Journal of Surgery*, before taking over the management of *American Medicine* in 1908. His literary ability won for him many honors, one of them being the presidency of the American Medical Editors' Association.

Mrs. Josephine Macrum Harris,

Wife of Dr. William Lett Harris, of Norfolk, Va., died at the home of her sister in Oakmont, Pa., August the 18th. The interment was made at Oakmont.

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DISSATISFACTION WITH PRESENT METHODS OF TREATMENT OF PEPTIC ULCER.*

By A. M. WILLIS, M. D., Richmond, Va.

Numerous facts tend to show that peptic ulcer is merely a local manifestation of a systemic disorder. As ignorant as we are concerning the etiology of ulcer, specific therapy is impossible and we are faced with the necessity of resorting to symptomatic treatment. Such being the case, we should carefully select those measures which have been found by experience best fitted to afford relief from the local disturbance, without causing the patient to fall victim, at the same time, to an even worse fate. Can we accomplish this best by surgical or by medical means? This question, so fruitful of discord among the two branches of our profession, seems as far from settlement as in the early days of abdominal surgery; and it may be of profit to review briefly the present status of our knowledge concerning what may be effected by the resort to surgery or by subjecting the patient to medical treatment.

In the order of their severity, the commoner surgical procedures for the relief of ulcer are gastro-enterostomy, pyloroplasty, pylorectomy, and sub-total resection of the stomach. Gastro-enterostomy was the first of these operations to be extensively employed, and it is interesting to note the increasing opposition to this procedure.

Lewisohn seriously questions the efficacy of gastro-enterostomy. He states this operation has been employed for over thirty years, and if it had proved entirely satisfactory in that length of time, there would not be the gradual increase in the number of surgeons advocating more radical measures,—a trend which points strongly to the conclusion that failures following gastro-enterostomy are very frequent. Lewisohn believes that the generally accepted figure of 5 per cent for the incidence of secondary ulceration after gastro-enterostomy is entirely too low, due to imperfect analysis.

Many surgeons are unaware of the ultimate fate of a large proportion of their patients, considering "only the few patients who come back to their clinic for re-operation." He states a perfect follow-up system is necessary before positive conclusions can be drawn; communication by letter is most unsatisfactory; the patients should be seen and examined at frequent intervals.

By a follow-up system which certainly seems to approximate his ideal in its efficiency, Lewisohn has ascertained the results following gastro-enterostomy performed by himself and his associates at Mt. Sinai during the years 1915-20. He found that gastro-enterostomy, with or without exclusion, effected a perfect cure in less than 50 per cent of their cases. Even more disheartening was his experience as regards secondary ulceration; this was noted in *over 34 per cent of his cases*.

Mr. Arthur F. Hurst, Physician to Guy's Hospital, in an address delivered at the Hospital Saint-Michel, Paris, makes the following observations in the discussion of the treatment of duodenal ulcer: "I advise operation very rarely—only when secondary pyloric obstruction is present or when repeated relapses occur in spite of every precaution. I am further persuaded in this course because, as the years pass, the number of patients I see who are suffering from relapses or unpleasant or even dangerous sequels of gastro-enterostomy steadily increases. The result of the operation may be unsatisfactory from the beginning; more commonly only after months and sometimes even years do these sequels appear. It is a remarkable fact that during the last two years the number of private patients who have consulted me for symptoms which have followed a gastro-enterostomy performed for various reasons by various surgeons, many of whom may be ranked among the most skilful and experienced in Great Britain, is approximately the same as the number of those suffering from gastric and duodenal ulcer."

It is a point of some interest that the surgeons who now condemn the operation of gastro-enterostomy almost without exception

*Read by invitation before the Warren, Rappahannock and Page Medical Society, at Front Royal, Va., April 19, 1927.

have a more radical procedure which they wish to substitute in the treatment of peptic ulcer. As Lewisohn points out, there is a growing tendency among surgeons both abroad and in this country to abandon gastro-enterostomy in favor of sub-total gastric resection; and, in two recent papers, excellent reasons are advanced for preferring the latter operation. It is unlikely that the operation of sub-total gastrectomy will become widely popular. Naturally, one is not justified in making the positive claim that serious or fatal results will follow the removal of the acid-secreting cells of the stomach, but the available evidence is such as to make us seriously ponder this possibility. This is especially true when we realize that sub-total gastrectomy for duodenal, gastric and gastro-jejunal ulcer has only been practiced in very recent years. I am aware of no considerable series of cases in which this operation has been done that have been studied over any period of time.

If we frankly and honestly face the facts, we must acknowledge that surgical treatment of peptic ulcer is radical and that it fails in a considerable proportion of cases to give the desired results. What has medical therapy to offer? Is it ever possible to accomplish an actual "cure" of an established ulcer by merely medical means, or is the best we can hope for under this form of therapy temporary relief?

That peptic ulcer may heal spontaneously is now established beyond a shadow of a doubt. Thus, Hart has found that from 8 per cent to 13 per cent of all adult bodies coming to autopsy show open ulceration or the scars of healed peptic ulcers; and Stewart, detailing the necropsy findings at the Leeds General Infirmary for the years 1910-22, inclusive, states that "healing of gastric and duodenal ulcer is a common event."

In a paper read recently before the Medical Society of Virginia, a colleague of mine ably advocated the surgical treatment of peptic ulcer, because he believed that "When one undertakes a cure of peptic ulcer by medical management, the patient should be informed that he may possibly develop cancer, he may bleed to death, or he may have a fatal perforation." How frequently one encounters similar statements in discussions of ulcer therapy; in the hands of the medical man, the patient's future is dark and uncertain; if, however, his judgment is so discriminating as to lead him to entrust his fate to us, he is as-

sured of immediate and permanent relief. Certainly, it would be to the material benefit of all of those who practice surgery to become convinced of this, but honesty impels us to recognize that many unfortunate occurrences may be seen following the operative treatment of uncomplicated peptic ulcer about as frequently as after medical treatment, although there can be no question as to the skill of the operator.

First, there is a primary operative mortality variously estimated at from 2 per cent to 10 per cent, the number of deaths from this cause far exceeding all those arising from duodenal cancer, hemorrhage, or perforation. Recurrence of the symptoms from a failure to cure the ulcer may be seen just as often after gastro-enterostomy as after medical treatment, if care is taken to follow the patient for a sufficiently long period and to rely upon a personal interview and a careful examination from time to time. Gastro-jejunal ulceration, a condition infinitely worse than that associated with the original ulcer, may arise in a considerable proportion of patients subjected to gastro-enterostomy. Clairmont found this complication in 28 per cent; Haberer in 20 per cent; Karl Meyer, at Cook County Hospital, in 25 per cent; and DeTakats in 18 per cent. Lewisohn encountered it in over 34 per cent. By post-mortem examinations, Stewart found this complication present in 18 per cent of a small series of cases. Nor are hemorrhage and perforation disasters encountered only in patients denied the benefits of surgery; both have been reported as causes of death after operative treatment of an ulcer. It is indeed seldom that temporary relief fails to occur in any ulcer patient subjected to hospitalization; after surgery, are we to attribute all of this relief to the scalpel, or is a part of it to be ascribed to the pre- and post-operative rest in bed, regulation of diet, and alkali administration? Sub-total gastric resection may afford relief from the ulcer symptoms, but it deprives the patient of an agent considered essential for the normal functioning of the digestive processes; and a complete removal of the acid-secreting cells may, according to some, eventually lead to the development of a surely fatal disease. With our little knowledge of the etiology of peptic ulcer, one cannot forbear comparing gastric resection for the relief of duodenal ulcer to resection of the sigmoid for hemor-

rhoids, or amputation of a leg for the cure of a syphilitic ulcer,—in other words, the application of capital punishment for a misdemeanor.

We must remember that peptic ulcer in its life cycle is prone to short or long periods of remissions. This fact is responsible for much of the confusion over the so-called cures following surgical therapy, medical therapy or no therapy. Knowing this and nothing of the etiology of the disease, there is some question whether any of these patients should ever be pronounced permanently cured.

In my experience perforation and hemorrhage are the more serious and the commoner complications of peptic ulcer and occur most frequently in patients with a short and atypical history, and in cases where the diagnosis had not been previously made.

Gastro-jejunal ulcer is also not an uncommon complication in my experience, and where it does not result in perforation its cycle resembles that of ordinary duodenal ulcer, with its remissions and exacerbations.

Aside from obviously surgical conditions, such as obstruction, hemorrhage and perforation, the chief complaint of the patient with peptic ulcer is pain. Apparently, so impressed have we been by this that we have come to regard relief from pain as indicative of the patient's cure; but, as a matter of fact, the disappearance of this symptom, pain, is absolutely valueless so far as carrying proof of permanent relief. This temporary cessation of pain in the average ulcer patient may be brought about not alone by surgical operation, but just as certainly by appropriate medical treatment; indeed, it has been reported many times in the absence of any intentional treatment whatsoever.

Experience indicates that in chronic ulcer of the stomach, because of the possibility of cancer transformation, in *duodenal ulcer* with *pyloric stenosis*, in *some cases of hemorrhage*, and, obviously, after *perforation of any ulcer*, *surgery is clearly indicated*.

From visits to the various surgical clinics, from a study of the current literature and from my own clinical experience the conclusion is inescapable that there is *justly* an increasing dissatisfaction with the present surgical methods in the treatment of uncomplicated peptic ulcer.

Unfortunately, the close co-operation between surgeon and internist that has so often

been invoked in papers on this subject is far from a reality. It is too apparent that many of the views expressed are partisan. Until more knowledge is gained as to the nature of peptic ulcer, progress in treatment is only possible through an agreement as to principles of management and close adherence to these principles by all concerned.

THE GENERAL PRACTITIONER AND THE SMALL HOSPITAL.*

By PHILIP S. SMITH, M. D., F. A. C. P., Abingdon, Va.

The general medical practitioner is as old as human needs. Mankind has never been willing to suffer and die without the appealing influence and attendance of the healer, doctor, surgeon, or medical adviser of some kind. The service may have been rendered by the priest or barber, but it satisfied even though it failed to cure, for nothing better was available.

The hospital is a comparatively modern innovation. While surgical procedures (circumcision) were practiced in the days of Moses, and lithotomy, trephining and other body cavities opened by the early Egyptians and their contemporaries, the successful, organized institutional care of the sick awaited the epoch-making contributions to medicine of Lister, Pasteur, Koch, Crawford Long, of Georgia, and others, during the last century.

With the advent of the hospital there gradually developed doctors of different types, depending largely upon the character of the work undertaken by each. From this evolution the so-called hospital doctor and general practitioner, as distinct medical workers, finally emerged.

It is axiomatic to state that the physician in general practice has his problems, both numerous and trying. It is not so generally admitted, but it is equally true, that the hospital doctor has his burdens, in many respects of a different character, but quite as harassing. The foregoing statement will probably be questioned by some who have no intimate knowledge of hospital problems.

To indicate that the two groups of doctors mentioned have at least three problems in common, and some practical suggestions with the hope of provoking consideration of a mu-

*Read by invitation before the Clinch Valley Medical Society at Norton, Va., April 29, 1927.

tually helpful plan, is the purpose of this paper.

The first of these mutually applicable responsibilities is the fact that both intra-mural and extra-mural physicians serve the sick. As a corollary to this statement, physicians, in turn, must be paid an adequate monetary consideration by the patient. This constitutes the second problem of the medical profession generally. Third: To render efficient service to the patient, the doctor, regardless of the character of his practice, must make provision for keeping abreast with the advances and ever-broadening scope of medical knowledge.

Let us now for the moment consider the peculiar problems of the general practitioner. In recent years our medical journals have been so replete with articles reflecting the trials and difficulties of rural and small town practice that it would be superfluous to do more than refer to them in passing. The long hours, the impossibility of arranging the daily program of work in an orderly fashion, the insufficient opportunities to study and read, the physically exhausting travels in automobiles and on horseback, the difficulty in providing proper education for the children in nearby schools, the lack of helpful contact and exchange of medical ideas with fellow practitioners, the inability to leave one's clientele for post-graduate study, and the miserably inadequate remuneration for his services,—all these and many more disadvantages have been discussed frequently in our medical societies and journals. And there is none to refute them, nor can they meet with anything but the most sympathetic consideration of their fellow practitioners in offices and hospitals.

Other handicaps of the general physician have recently arisen, and in the minds of some constitute problems even more serious than those enumerated. For example, there has been spirited discussion of the invasion of the field of general medicine by the State Board of Health. By many doctors such activities are regarded as an unjustifiable encroachment. Where such State supported medical service is rendered *gratis* to those in financial position to pay, there is little ground for rebuttal to the argument of the local doctor. On the other hand, we freely admit our personal obligation to the public we serve in the matter of preventive medicine, even though its objective and successful attainment diminish our incomes proportionately as the morbidity and

mortality rates are reduced. Can we, therefore, consistently fail to adhere also to the principle of the State's obligation, in a general, systematic manner, to prevent and relieve sickness, especially of the contagious type, among the indigent?

The general practitioner is doubtless correct, too, in stating that his influence and income have suffered by reason of the so-called "specialist" and hospital doctor. Once the sole medical adviser of the family, he is now confronted almost daily with the fact that he is no longer so. Not only are his patients seeking other sources of medical advice, but, in many instances, the patient returns and publicly minimizes the skill and ability of his family physician. Is there wonder that on the programs of our medical society meetings there appear such subjects as "The Passing of the Family Physician?" Such papers presented by the men in rural and small town practice reflect their pessimism rather than their sober judgment.

Competition has developed with unscrupulous individuals, without training even in the fundamentals of medicine, who pose as "specialists." Many such are swelling the ranks of the numerous varieties of modern cults; their rapidly increasing number attests their financial success. Even the graduate from an accredited medical school who practices a specialty with no real preparation is unworthy of the confidence and respect of his fellowman. They are conscienceless parasites of a suffering, groping humanity. However few will deny that the field of medicine has been so greatly enriched and broadened during the past fifty years that none of us can encompass more than a small part of the scientific and practical knowledge of diagnosis and therapy. Hence, there is an admitted need of the honest man who has received specialized intensive training in some particular phase of medicine. Undoubtedly, he is better prepared than the average doctor to recognize and treat the more obscure and difficult pathologic conditions in his particular specialty. Furthermore, it will not be denied that the patient's interests are of primary importance and that he is entitled to such consultation, if his condition warrants it. But, the patient's welfare is much better promoted if he be referred to his family physician to the specialist, when needed, rather than by haphazard, independent

ent action on the patient's part in selecting such a consultant.

Now let us consider the problems confronting the hospital and hospital worker. I have in mind particularly the small hospital of less than forty beds without endowment or State aid,—hospitals whose entire income depends upon earnings from its patients.

There are at present approximately 6,946 listed hospitals in the United States having a total capacity of 859,445 beds. Exclusive of Federal and State institutions, there are 460,908 beds, or one bed to every 260 inhabitants.¹ The ratio is far in excess of that which prevails in Clinch Valley and other similar communities. Including Bluefield, you have in this Valley ten hospitals of approximately 275 beds serving a population of about 200,000; this represents one bed to every 728 inhabitants. Most of these institutions have come into existence during the past ten years and reflect the fact that sick people in ever increasing numbers are going, or being sent, to hospitals.

Dr. W. S. Rankin, Director of the Hospital Section of the Duke Endowment, has recently published a valuable paper entitled, "The Needs of Rural Medicine in the Carolinas."² After demonstrating the fact that the distribution of medical personnel and hospital facilities is rapidly gravitating into the larger cities, he discusses the medical needs of the typical rural county as follows: "The county we have in mind is one of 30,000 population, 500 or 600 square miles in area, with no town larger than 5,000 or 6,000 people, a county typical of the South. With an average amount of illness per thousand people, that county would have constantly ill 25 persons per thousand, or a total of 750 cases of bedridden illness. Of these 750 physically incapacitated, ten per cent of them, that is, 75, are so seriously ill as to need hospital care; and of the 75, one-third of them can receive hospital care only at the expense of others; that is to say, there are 25 charity hospital cases." These figures, he states, do not include the still larger group of people, physically impaired from 10 to 50 per cent in efficiency as wage earners, and yet not bedridden. Many of this type need hospitalization.

That the hospital has come to stay and serve a definite need in our body politic cannot be denied. Nor will the sick public now tolerate the inconvenience and expense of being trans-

ported long distances to the large city hospitals in any but exceptional cases. The average individual utilizes his local lawyers, churches, schools, etc., and he expects competent hospital service to be afforded in his community. Such small hospitals as we have in Holston and Clinch Valleys are intended to supply this demand, but their management, both from the financial and professional standpoints, is becoming increasingly more burdensome. Some of the problems connected with the conduct of small hospitals must be reviewed very briefly.

The question of hospital finance is interwoven very intimately with the professional care of the patients, for the more efficient the professional service the greater the cost of operation. For instance, in the institution with which I am connected we have seen, in spite of every effort to avoid waste, the cost per diem per patient increase more than 20 per cent since 1920,—and this in the face of a 74 per cent increase in the number of patients admitted. This has not resulted from a rise in the price of food, fuel, hospital supplies, etc., but is rather an expression of the ever-enlarging requirements of the organizations concerned with hospital standardization. Unless these suggestions are complied with, the hospital loses its standing and recognition. Furthermore, the patient, himself, is constantly demanding more conveniences and expensive service.

The recent "Hospital Number" of the *Journal of the American Medical Association* illustrates the point in mind. In addition to the long list of "essentials in a hospital approved for intern service," including number of beds, character of staff, clinical laboratory, X-ray facilities, hospital records, medical library, anesthesia, dietitians, and various specialized professional services, a statement is appended that after January 1, 1928, a recognized hospital must show records of necropsies in at least 10 per cent of all deaths. None will deny the value of autopsies, but many will rise to inquire how they can be obtained frequently from the family of the deceased patient in a small Southern hospital.

The problem of financing the patient without funds constitutes a constant source of embarrassment to the hospital. The father of a large family who develops peritonitis, and who is deposited at the hospital door admitting that he has nothing of this world's goods, but only a fearful "misery" in his belly, cannot

1. J. A. M. A. Vol. 88, Mar. 12, 1927.

2. Southern Med. Journal: Vol. XX, No. 3, Mar., 1927.

be declined. Nor can these patients with surgical emergencies be transported safely to the distant State supported hospitals. The State treasury which cares for the indigent tuberculous, insane and epileptic patients, should make more general financial provision for such acutely ill unfortunates without hospital means.

Our sister profession, nursing, is also, unintentionally, contributing its share to the growing burdens of the hospital. The applicant to the training school is required to be of a certain age and to have at least two years of previous high school education. When admitted she is supplied with uniforms, books, laundry, room and board; is taught *gratis* her profession and given usually a monthly allowance for necessary expenses. Less time to nursing patients and increasing hours devoted to recreation and class-work are being enforced. Full-time registered instructresses are urged as necessary in addition to the teaching given by the staff of doctors and graduate nurses already employed. The curriculum imposed is rapidly approaching that of a medical school with the result that, in some instances, poor doctors are being graduated instead of competently trained nurses to care for the sick in a practical manner. The latter type of nurse is now in great demand.

Full-time dietitians are recommended. Most of the smaller hospitals are required to affiliate with the larger ones to give specialized training in certain subjects to pupil nurses: such a policy encourages prospective nurses of the better type to go elsewhere than to their local hospitals for training. Many such do not return after graduating to their communities for the practice of their profession. Revenue to the hospital has been curtailed as the result of limiting its pupil nurses to a maximum number of days for special duty work during their course of training.

In view of these and other nursing problems, it is probable that in the future the small hospital will either have to utilize graduate nurses, if available, exclusively for routine floor duty, or else give only fundamental training to pupil nurses for a period of 12 to 18 months and graduate them as "practical nurses."

I have indicated that the general practitioner and the physician in the small hospital have three problems in common:—the patient's needs, the doctor's adequate remuneration, and

the necessity of constant acquisition of new, worth-while medical knowledge. How can these objectives be effected to the mutual benefit of both classes of physicians concerned? I have no panacea to prescribe, but the belief that the problem can be solved, in part, requires no excessive optimism.

The suggestion of state-controlled medicine is advanced only to be condemned. It is foreign to our American heritage and to our professional ideals.

"Fee-splitting", though widely practiced in the effort to equalize the remuneration and establish a working basis between the intra- and extra-mural physician, disregards the best interests of the patient and violates our accepted code of ethics and honor.

Paradoxically, I believe the solution of the problem can be found in the number of small hospitals now in operation. During the past twenty-five years there has been an increase in the United States of more than 250 per cent in the number of hospitals, and this does not include the large list not accredited by the various states. Reliable figures can be quoted to show that in the large cities both the number of physicians and hospital beds per 1,000 patients are far in excess of the ratio existing in small town and rural districts.

The city physician can and does charge more than the profession elsewhere for equivalent services. But this difference in fees is probably more than offset by the former's greater living and professional expenses. How is the city practitioner solving his problems? Many of the more alert and better informed have affiliated themselves with one or more hospitals. Others, in increasing numbers, are trying to qualify themselves so as to establish similar connections. The requirements imposed by such open hospitals are not unreasonable, but are sufficiently rigorous to exclude the man of inferior training and ability.

In Southwestern Virginia most of the counties have at least one small hospital; others will be operated in towns of more than 5,000 people. Can they survive the increasing competition? It is believed they can if they are located properly, financed in a business-like manner, and, more important still, are prepared to render efficient service to the patient. The last named condition implies much, but has especial reference to a competent, well-balanced staff. But, it may be reasonably argued, a 25 bed institution cannot be expected

to maintain a full-time corps of doctors representing all the various specialties in modern medicine. The answer to this argument determines the value or worthlessness of my paper.

Given a hospital of 20 to 40 beds with a competent resident surgeon, and located in a small town, what suggestions can be offered for successful operation that will at the same time benefit rather than injure the general practitioners in the adjacent territory? The plan now so prevalent in the large cities, with certain modifications, is presented for consideration.

Good roads and automobiles have made the small hospital generally accessible. Under the plan we have in mind, by mutual agreement among the neighboring doctors, let Drs. A. and B. qualify themselves to assist the resident surgeon and care for the surgical emergencies during the latter's absence. Have possibly two other general practitioners devote special attention to internal medicine and serve the hospital and community in that capacity. The X-ray, anesthetic, urological, pediatric, gynecological, and other departments can be similarly provided for. It is not suggested that the participating doctors should abandon their former activities, for the income from such special work would not justify such a course, nor could they be spared by their former clientele.

It is also noted that the proposed hospital should have a full-time competent surgeon. This provision is thought necessary to safeguard patients from ill-prepared operators, lacking experience, surgical judgment and manual dexterity. Here, the self-evident statement should be stressed,—that the family physician referring a patient to the surgeon for operation should present and collect an adequate fee from the patient for his diagnosis and other services.

Reference to the obstetrical service was purposely omitted. After several years of practice, the average general physician is a competent obstetrician. Yet, pregnant women in increasing numbers are entering hospitals for delivery. They are impressed with the aseptic provisions in the institution, the nursing attention, the modern methods of alleviating the dreaded labor pains, the immediate perineorrhaphy skillfully done when needed, and the all-important ante-partum and post-partum treatment. In addition to attentive prenatal care, the general practitioner should encourage those patients who can finance hos-

pital delivery to avail themselves of it; and he should retain control of the patient after entering the institution. If he is not qualified to offer the patient this superior type of obstetrical service, she will pass into other hands.

The patient with the problem difficult of diagnosis should be afforded the benefit of consultation, X-ray and clinical laboratory aids in the hospital when needed. The requests for such special examinations should come from the attending physician to whom the reports are submitted. After the diagnosis is made, he should retain control of the patient's medical treatment whether in or outside the hospital.

Under the plan proposed, mutual exchange of skilled consultation service would be available at small cost to the patient. Such an arrangement, to be worth-while and successful, necessarily implies adequate, specialized post-graduate training on the part of those participating in it. Furthermore, it is based fundamentally on a broad, mutually helpful spirit of co-operation and a zealous interest in promoting at all times the best interests of the patient.

As aids to perfecting such a plan, a reference library, with standard text-books and a varied assortment of medical journals, should be maintained in the hospital. Standard rules of medical practice should be enforced; adequate written clinical records made compulsory and filed in the hospitals; necropsies done whenever available and the pathological findings recorded with other data connected with the patient. Hospital and professional accounts should be kept and rendered separately. Provision should be made, if possible, for charity beds whether the hospital is controlled by stockholders or is a community institution. Finally, frequent stated meetings of the clinical staff should be held for discussion of the professional work, and all members should be urged to attend and participate.

In conclusion, it is recognized that the suggestions proposed have inherent difficulties not possible of solution in all details, but in principle the plan is not impracticable. Much would depend upon the personnel, professional enthusiasm, ability and co-operation of those interested in its success. If accomplished, the financial burdens of the small hospital would be lightened through increased patronage; the better qualified general practitioner could more easily retain his clientele; incentive to

legitimate professional advancement and proportionately increased income could be anticipated; and, finally, the chief objective of every right-thinking disciple of Hippocrates,—the most efficient service to the individual patient, to whom we, consciously or not, have dedicated our lives,—should in itself commend the plan for earnest consideration.

Johnston Memorial Clinic.

LOSS OF VISION WITH ENDOCRINE PHASE.*

By WILLIAM C. MOOMAW, M. D., Petersburg, Va.

This case is reported not because the writer knows very much about it, but with the hope that some of you, having had a wider experience with similar disorders, might enter into a discussion which may throw light on the problem, if problem there be. In truth, what seemed to me to be perplexing, might appear to you a very simple condition. Therefore, in order to bring the case before you, I desire to present it in more or less detail.

CASE REPORT

G. T. K., white male, forty-five, married, bookkeeper. Family history negative. Had measles, mumps, and "chills" when a child ten years of age. Personal history otherwise negative.

On August 31, 1926, the patient was examined at my office. He complained of failing vision dating from the previous June, insomnia, loss of appetite, loss of mental and physical urge. He had worried a great deal over his wife's illness of several months in the hospital, over his own condition, and over the state of his finances. He was depressed to the point of melancholia. For insomnia he had taken bromides and veronal for several months,—of the latter, three or four tablets daily.

In weight he was much reduced, his color was bad, he had some digestive disturbance with gas, but his elimination was fair; he was a light smoker, and small eater.

The examination revealed average, adult, chronically infected tonsils, and more or less infection of the teeth.

His vision at this date was 20-40 and 20-100, with anterior, media, and fundus findings prac-

tically negative. The eyes presented the semi-stare of organs with loss of vision; that is, they were slow in movement and adjustment. Vision was somewhat better in subdued light.

Before entering upon any treatment, I requested a thorough general physical examination, which was duly made in a Richmond clinic, as follows:

"General physical examination showed rather definite evidence of some organic trouble with his central nervous system. There was a lateral nystagmus. His pupils were unequal, the right being smaller than the left. Both reacted normally, but the left less actively than the right. There was slight slurring in his speech. His knee-joints were quite sluggish, but obtained on reinforcement. Babinski was positive on the right, and his Gordon also. His Romberg was negative. His teeth showed evidence of infection, and the tonsils appeared diseased. His radial vessels were more sclerosed than one would expect at his age. His blood-pressure was a little low. I could make out no trouble in his lungs, and examination of his abdomen was negative, except for definite tenderness on pressure in the region of the gall-bladder. Examination of his nose, throat, and sinuses (by a local specialist) was reported negative, except for definitely diseased tonsils. He advised tonsillectomy.

"Dental examination showed the upper right first molar, the upper left first molar, and the upper right second molar pulpless, with evidence of apical disease, and hopelessly diseased by pyorrhea. The upper and lower anterior teeth were diseased by pyorrhea. There was present in the region of the upper right bicuspid a metallic looking foreign body which appeared to be a broken off instrument used some time ago in the treatment of the canals of this tooth previous to its extraction. The dentist advised treatment for pyorrhea, extraction of the upper left first molar and the upper right first and second molars; following this the insertion of plates to restore function.

"Proctoscopic examination was reported entirely negative. A specimen of mucus from the bowel was sent to the laboratory for examination for amoeba. Careful search failed to show any organism.

"Blood examination showed a hemoglobin of 74 per cent, with 3,700,000 red cells, and a normal white and differential count. Uri-

*Read before the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology, at Charlottesville, Va., April 30, 1927.

analysis was entirely negative. Examination of his stool was negative. Gastric analysis showed free hydrochloric acid 18 per cent, combined 10 per cent, with a total acidity of 28 per cent. There was no occult blood, and microscopically it was negative. His renal function showed 46 per cent phthalein output in two hours' time. His non-protein nitrogen was within the limits of normal. His blood Wassermann was reported negative.

"A cystogram of the gall-bladder was made following the administration of Graham salt. This study showed a markedly diminished accumulation and concentration function, and also a diminished after-meal elimination, indicating a probable pathological gall-bladder.

"From these examinations, it will be seen we found several definite foci of infection which could have a bearing on his eye condition as well as his general physical shape. In view of the neurological findings, we feel he should certainly have an examination of spinal fluid before anything else is done. If this should throw no further light on his case, he should have the dental treatment outlined, a tonsillectomy, as suggested, and, following these operations, general measures directed towards building up his weight, strength, improving his anemia, etc. After several months, if his improvement does not become definite, the removal of his gall-bladder should be considered."*

On September 21st, the patient again presented himself to me, and we found his vision at this time to be 20-50 and 20-200, with no changes in the eye-grounds. On this date, I operated for removal of his tonsils, leaving a perfectly clean throat. Early in October, he began his dental treatment along the line suggested by the clinic, and immediately had his mouth put in order. While having his dental treatment in another city, he called to see a prominent specialist at my request, who afterwards wrote me in part, as follows: "All of my impressions of Mr. K. were that the trouble lay elsewhere than in the eye. Distant objects look smoky, cannot focus quickly, light sense poor, temporal side of right disk rather pale, left disk questionable, fields good."

We saw the patient again on December 8th, only to have our hopes and expectations crowned with humiliation and despair;—there was no improvement whatever. The patient sat in gloom, with face buried in his hands.

*The spinal fluid was subsequently examined and reported negative.

Empirically, we prescribed maximum doses of potassium iodide, which led only to further disappointment.

Later in December as this miserable man sat in my office, there came to me, probably subconsciously, the hint that likely there was an endocrine phase in this case,—a vicarious factor of internal medicine, however, about which I know practically nothing. I wrote to one of the most reliable biological pharmacists, describing the case in detail, and received in reply assurance that it seemed a plain case of glandular insufficiency, particularly of the suprarenals. A supply of the proper glandular extracts was forwarded, including one grain tablets of suprarenal gland extract, and one grain combined glandular extract, with complete directions as to administration.

The patient began at once to improve, and maintained a steady and consistent convalescence. In March, his vision had returned to 20-15, O. D. and O. S., he had gained thirty-five pounds, had a good color, slept and ate well, was entirely free from all psychic disturbances, and was daily at work.

After deciding to report this case, I wrote to my friend, Dr. Clyde E. McDannald, of New York, for such information as he could draw from his rich experience with similar disorders of the eye. He, in turn, reviewed the history of this case with several eye men, including Dr. Arnold Knapp. The letter is as follows: "The consensus of opinion seems to be that this was a case of toxemia of some sort with a probable relative central scotoma which could have been brought out only by careful field plotting with a 1 m.m. test object. The feeling is that, if it was a pituitary affair, you would have had an hemianopsia or something of that nature.

"The opinions expressed were to the effect that it might have been a menopause (male) in which instance it would be likely to respond to endocrine therapy, a possible but not probably generally paretic, but more apt to be the result of the veronal he was taking. Veronal, as you know, will affect the vision quite seriously, and if the poisoning is pronounced, complete recovery of sight does not always take place. Certainly the case is one of more than ordinary interest".

The writer is not conversant with recent literature dealing with the relations of the endocrine system to ophthalmology, but Casey A. Wood, in *The Year Book of 1922*, has this

to say: "It is becoming increasingly apparent that endocrinology is a biologic conception which is fundamental and essential to our understanding of vital reactions in health and disease. This alone, as pointed out by P. Friedenberg, makes it incumbent on ophthalmologists to familiarize themselves with the data already obtained and to apply them intelligently to the recognition, and, eventually, to the treatment and prevention of ocular disturbances. Recognizing a certain endocrine predominance in definite categories, we shall, as thinking physicians, put a different and an added interpretation on sex, age, race, environment, climate and diet. The term constitutional, applied to disease or to treatment, must include the study of the glands of internal secretion. Such varied factors as specific disease, tuberculosis, rheumatism, focal infection, the lymphatic diathesis—formerly labeled scrofula,—are not only potent in producing the histologic changes recognized so early by the cellular pathologists of Virchow's era, but they also profoundly affect the internal secretions and the glands which supply them, and so bring about prepathologic or ante-organic changes which those who know can recognize beyond a doubt."

Experimentally and clinically, W. Zentmayer found that extirpation of the thyroid gland in dogs is sometime followed by corneal infiltration which in some cases leads to ulceration and ectasia. He also noted lachrymation, conjunctivitis and even partial blindness *without ophthalmoscopic changes* after removal of this gland.

One more short paragraph from Wood: "At present we have no direct evidence that the ocular complications of disease of the pituitary body are produced other than by direct pressure and increased intracranial tension; *but*, the 'antecedent amblyopia' of de Schweinitz, the frequent variability and at times transient nature of the disturbance of visual function, the beneficial effect of glandular therapy on the amblyopia in some cases of undoubted hypophyseal disease, and the fact that oculomotor disturbances have been met with, due to change in the basal nerves *not* the result of pressure, suggest that disturbed secretion of the pituitary gland may also be a factor, especially in the early state of the affection."

Briefly, by way of summary, we have here, then:

1. A case of partial blindness without oph-

thalmoscopic changes, but with systemic disturbances.

2. Several foci of infection.

3. Drug addiction of short period though with a drug of possible toxic properties.

4. No apparent improvement from operative procedures even after lapse of three months.

5. Immediate and rapid improvement after administration of glandular therapy.

Conclusion: This would seem to be a case of toxic poisoning which produced not only the amblyopia but which depleted the endocrine system and perverted the function of internal secretion. It is more than likely that improvement would eventually have ensued, but it is also more than likely that the glandular therapy materially hastened the restoration of arrested glandular function, and established desirable systemic stability, both of which were basic factors in the improvement of vision.

14 Marshall Street.

THE PROPHYLAXIS OF DIABETES.*

By THOMAS J. TUDOR, M. D., Norton, Va.

There are today in the United States probably a million people suffering from diabetes mellitus. Think of one out of every hundred of the population having this disease. In Boston and New York statistics show one out of every fifty deaths from this cause. Perhaps, if the causes of deaths elsewhere were recorded with the same scientific accuracy, the figures would be as high all over the nation. The fact that in Boston and vicinity the amount of insulin used today is practically twice as great as that over the country as a whole cannot all be accounted for by the migration of diabetics to the specialists of that city for treatment, but it must mean that elsewhere some diabetics are not diagnosed.

Diabetes was described by the ancients in medicine back to Celsus, but Claude Bernard's discovery in 1857 of the glycogenic function of the liver was the beginning of real progress in knowledge of this disease. Curiously enough, however, to this day it is maintained that disease of the liver, the weight of which is 1/10 sugar, does not cause diabetes. Neither does nephritis, though the renal threshold, that is the point of blood sugar accumulation,—normal in health from .08 per cent to .12 per cent,—at which sugar begins to be eliminated

*Read before the Clinch Valley Medical Society, at Norton Va., April 29, 1927.

in the urine, is a very vital matter in diagnosis. Unfortunately this threshold is variable, and higher, as a rule, in nephritis and in the aged, usually ranging from .15 per cent to .2 per cent. In actual diabetes the blood sugar content is usually from .2 per cent to .4 per cent, but there is no constant relation between the amount of sugar in the blood and in the urine.

Diabetes occurs at all ages, but half the cases in children occur between the ages of ten and fifteen, and half the adult cases in the fifth and sixth decades. In childhood, over height is found in a large percentage of the cases, and the "long lean Cassius" girl or boy should excite our suspicion. Up to thirty-five, insurance statistics indicate we are safer if a little over standard weight, while after thirty-five the risk of obesity is great, for, if one misses diabetes, the degenerative diseases are an ever dreaded menace.

Glycosuria occurs in disturbances of the nervous system. Puncture of the floor of the fourth ventricle has been recorded for years as a cause but animal experiments prove that this will not occur after removal of the adrenal glands. So far as we know, the pancreas stands alone in its action, through its islands of Langerhans, in increasing the ability of the system to handle sugar, while it has been proven that at least three of the other glands of internal secretion—the suprarenal, thyroid, and posterior lobe of the pituitary,—by their overactivity, tend to produce glycosuria, and the underactivity of any or all of these tends to increase sugar tolerance. Hyperthyroidism is frequently accompanied by glycosuria and sometimes by true diabetes, and Cushing and others have demonstrated the frequency of glycosuria in cases of acromegaly. Glycosuria occurring in pregnancy, in the acute fevers, in septic conditions, after anaesthetics, after the administration of salicylates, in gout, cachexias, anemias, and with carbuncle cases, may be transitory, but should never be considered so until repeated urinalyses and watching convince us that we have not a case of diabetes. This is imperative as regards carbuncle.

Fifty per cent more cases occur in men than in women, and it is much more frequent among the well to do than among the poor. The Jews have more cases than any other class and the Negroes fewer.

Tremendous strides have been made in the curative treatment of diabetes since the recent

discovery and popularization of insulin, but insulin has served to strengthen rather than to weaken our faith in scientific accurate dietetic regulation. Our success in prevention must come largely through education in eating properly.

Should we go hungry in a land of plenty? Some one has aptly said that the people live on one-third of what they eat and the doctors on the other two-thirds. Whether we believe in evolution or not, I think we all admit that our bodies were so constructed, certainly away back in our ancestry, that they were suited for the assimilation of fruits, berries, herbs, leaves, etc., when eaten raw, and less adapted to dried nuts, tubers, meats, etc. In other words, by nature we are vegetarians, and the green vegetables, to say nothing of their vitamins, suit us much better than dried beans, rice, and other dried carbohydrate foods. The cheapness of these dried carbohydrates, the readiness with which they are prepared, or purchased ready prepared to be eaten from a can, the abundance and low price of sugar, which, when Columbus discovered America, is said to have sold in London for \$276.00 a pound, coupled with the fact that these foods are powerful and quick energy producers, have made us over-indulge in these articles. Since the attempted abolition of alcoholic beverages, there has been a tremendous increase in the consumption of candies. In 1926, with Denmark, we led the world for the year in a per capita sugar consumption of 118 pounds. The next highest were Great Britain with ninety-three pounds, Canada ninety, Holland eighty-nine, and Switzerland eighty-three. Add to this the dried cereals, etc., which are converted into sugars before they are utilized, and we can understand the breaking down of our bodily powers which have to do with the assimilation of these foods. There are diabetics actually voiding three-quarters pound of sugar daily with the urine, and some eliminate in this way one to two barrels annually.

Fortunately, the light is breaking into a new day. Our people know that they ought to eat green foods in abundance and certainly twice daily. We should popularize raw fruits for dessert, and we ought to learn to appreciate their real flavors and not camouflage their delightful taste with sugar. I hope ere long every housewife will consider it improper to serve cooked fruits, or jellies and jams, when raw fruits are available.

Perhaps no single predisposing factor has produced half as much diabetes as obesity, and we know that, as a rule, obesity comes from too much food and too little exercise. Every normal adult in health should have exercise daily the equivalent of a five mile walk. It is said that the brain workers in Paris, the home of the best cooks on earth, show diabetes in 10 per cent of their number. Heredity was long considered a predisposing cause, but we now believe that it is hereditary eating habits,—one generation of heavy eaters following another. Conjugal cases likewise must come from the exposure of the two to the same abundance of food rather than to one another.

How can we fit our diabetic program in with the effort of the years for the building up of the thin, by feeding undernourished school children to ward off tuberculosis, etc., with hot lunches at the expense of the taxpayers, and by the propaganda of the manufacturers and growers for a bigger consumption of their foods? Luckily, it seems that, in the presence of tuberculosis, cancer, or syphilis, rest and over-feeding will not cause glycosuria. However, there does seem to be a real menace in the forced feeding, usually accompanied by rest, following the acute diseases. A typhoid convalescent, for instance, has every muscle and organ of his body weakened, and it is not logical to expect the pancreas to be an exception. This is doubtless the reason for the frequent history of the symptoms of diabetes following soon after recovery from a severe illness. Here, again, safety lies in the character of the diet and an earlier return to green vegetables and fruits with a limitation of the starches. The lesson runs like a scarlet line all through our studies that the sugars in the raw fruits and the carbohydrates in the green or raw vegetables can be taken in greater abundance with impunity than in the dried foods, either fruit or vegetable.

Joslin has said that scales are as important in the handling of chronic cases as the thermometer is in the care of acute diseases. We cannot use scales too often. Frequent urinalyses, specimen to be voided two hours after a full meal in which some sweet is eaten, seeing that the specimen is left in the boiling solution five full minutes regardless of any hurry, repeated examinations when we are suspicious, glucose meal test, blood sugar test,—all these will help us in our diagnosis. Periodic health examinations are becoming more and more

popular. Examination on one's birthday regardless of how well he feels or looks, or, I have wondered, if we could impress upon those who drive cars that, when they put the alcohol in the radiator and fix the car up for the winter, and again when the engine is cleaned and the alcohol drained for the summer, they need a physical examination as well as the car. Both of these seasons are particularly suited for such, the one in anticipation of the rigors of winter, and the other as a safeguard against the hazards of summer. Nothing less than semi-annual examinations should be considered adequate for children under-weight or over-height, adults over-weight, and all adults past forty.

Some one has said that the sooner we discover the diabetic, the longer he can be treated. Let us regard the tall slender candy eating child and the obese adult, especially past thirty-five, with the same concern as regards diabetes that we do the case of bronchitis, recurring every winter, in whom we can find no other sign of tuberculosis. Remember that statistics of some of the insurance companies indicate that diabetes is a disease of all ages, and that while, as we grow older, the tendency to the constitutional diseases increases, the tendency to diabetes does not increase with age in the absence of obesity. Only about 10 per cent of all cases of diabetes occur in the under-weight, 15 per cent in normal weight, while all the remaining 75 per cent come in those above normal weight.

Our health boards are about to launch longevity clinics. Our knowledge of these matters must reach the masses. We are finding these diabetics late. We must get them early. Every diabetic and every member of the family of a diabetic is a missionary in the prevention of the disease. They will test specimens for sugar in their own families and in the families of their neighbors and they will bring the patients in. True they will make some errors in diagnosis, but they have a pardonable pride in preventing others from having to live through the tedious and tiresome self-denial of food restrictions. Under careful dieting and treatment, the diabetic usually lives a long time, and his self-denial may give him more will power,—beautiful to sermonize on, but hard to stand. If we can caution these big eaters, these pre-diabetics, we can do a tremendous amount of good. It is a thousand times better to coax the little boy on the street to

put out his bonfire, than to come by an hour later and call out the fire department in time to save half the home.

348 Oak Street.

DISEASE, PAST AND FUTURE.*

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SECTION I.

Disease has always made a varied appeal to the thought and imagination of mankind. The anguish or heroism of the victim; his disability or victory over infirmity; the distress of relatives and dependents, and the sweep of pestilence are themes which have attracted the historian, the poet, the tragedian, and the philosopher.

The votaries of every religion have tried in turn to read into disease some expression of the ruling deity, and through faith and formula have sought to achieve both cure and prevention. Disease is but one form of human suffering, which, along with sin, destitution, misfortune and death, constitutes one of the great mysteries ever confronting and baffling mankind. The "mystery of evil" is woven into the thought of the great religions. From the time that Job heard the Voice in the whirlwind to the present, the enigma of human suffering and implacable fate has continued to be one of the insoluble mysteries of the universe, and has forced human beings to the answer of faith, if an answer is to be won.¹

The medical men of ancient civilizations were, usually, either priests or philosophers.^{2,3} Modern medicine began when Hippocrates definitely turned from the blend of religion, philosophy and medicine which prevailed in his day, and claimed, as the special province of medical endeavor, the objective study and treatment of disease and diseased persons. Since the time of Hippocrates the greatest advances in medical knowledge have come from the study of the realities and material aspects of disease. Delving down to the metaphysics, or first principles, has not greatly enlightened the physician.

It is, therefore, of no little interest to call attention to certain lines of evidence in the field of modern science, which seem to cast

light upon one of the eternal mysteries of life, and which appear to transfer an old metaphysical question to the field of biology. Where and how did Disease first originate in our universe? Can we trace Disease so far back along the paths of Time that we can form a reasonable opinion as to its starting point, and as to its place in the vast scheme of life? Can we prophesy its future?

At the beginning of our study we are confronted with an unexpected difficulty. We must find a definition of the word "disease". Strange as it may seem, no satisfactory precise definition has ever been given. Severe disease is easy to recognize, but mild diseases are separated from "health" by no sharp boundaries. In the dictionaries and pathologies it is customary to contrast "disease" with "health". "Disease" is some blemish or imperfection which impairs or mars the condition or state called "health". Some authors, like Moodie,⁴ are led to lay too much stress upon infections and parasitic diseases, as if all "disease" was "infection";—obviously too restricted a view. In Aschoff's⁵ "Pathologie" the following definition is given:

"We understand by the term 'disease', (Krankheit) the totality of the abnormally strong reactions of the whole body or of its parts to a disease-producing stimulus. (Reiz)."

This definition is inadequate. Not all disease shows "abnormally strong reactions". The reactions may be abnormally *weak*, or *absent*, or of *altered character*. The scope of "disease" is not fully stated. The use of the term "abnormal" in the definition implies a deviation from "normal" or "health".

It is equally difficult to give a precise definition for "health". Barker puts the matter very nicely:

"It will scarcely do to say that health is the opposite of 'sickness'. To say that it means the existence of a 'sound mind in a sound body' is better, but then we ask at once the significance of 'soundness'. I have looked far and wide for a suitable way of defining the meaning of the term 'Health' and have found nothing better than an adaptation of Grote, according to which 'Health is the capacity of an organism for adequate responses to influences in its surroundings'. We can easily change the wording to fit Herbert Spencer's definition of Life and say that 'Healthy Life is adequate adjustment of internal to external relations'. Maladjustments of all sorts would

*Read at the fifty-seventh annual meeting of the Medical Society of Virginia, in Norfolk, October 12-15, 1926, under title of "The Ancestry of Disease." The title has been changed, in view of comments, and the paper has been much elaborated.

then fall within the domain of the pathological (disease, disorder, anomaly)."

Clarke⁷ has attempted to associate "disease" with "organic dependence". He goes too far. There is, probably, no creature on earth that can lead a life completely independent of other living things or of the residua left behind by dying creatures. The evidence of a carbon cycle in nature; the known interrelationships and food requirements of plants, animals and microscopic life; what is known of the "biologic balance" in nature, all testify to the dependence of each creature on the abundant life around it.

While Clarke turns his thoughts to the dependent or parasitic creature, Eccles focuses attention upon the living creatures that are attacked by parasites.¹⁴ He gives an interesting and suggestive discussion of the immense role played by parasitism and infection in nature, and suggests that the ability to withstand parasites must have been one of the most important qualifications in survival and in the evolution of species. What he says on this subject is plausible, but he makes the error of identifying "infection" or "parasitism" with "disease," overlooking the very numerous diseases that have no parasitic or infectious element. Moreover, for a species to survive, it must be able to endure many other physical, chemical and biologic strains besides those coming from parasites.

Definitions of "disease" will vary according to the point of view of the writer. The "disease" of an individual today may be determined by comparison with his condition at a previous date. Different individuals may be compared; different ages; different races; different animal species, etc. In these instances, there will be different standards of the condition called "health", and corresponding differences in the level called "disease".

In this article "health" and "disease" will be approached from another angle. An attempt will be made to trace them both back to the beginnings of life; to correlate "health" and "disease" with "survival", "extinction", and "variation", and with changes of environment. In this way it will be attempted to secure a biologic view of "disease" as a factor in evolution. We will include in the one term "disease" what Barker subdivides into "disease, disorder, anomaly". We will include all the subject matter with which pathologic

anatomy and pathologic physiology are occupied.

Since "health" is used as the standard of comparison in making a definition of "disease", it will be well to start with a working definition of "health".

"Health" depends (i), upon a certain degree of completeness of *body structure*; (ii) upon a certain degree of harmony in the interrelationships of the parts and forces which pertain to the body;—i. e., in *function*; (iii), upon alterations in or among the constituents and forces of the body, which shall occur within certain limited amounts and within certain rates; (iv), upon the harmonious adjustment of the creature to its environment at any given instant; and, (v), upon certain limitations in the amount and rate of changes of environment or of any particular important element of the environment. Each of the factors mentioned is continuously varying. Not only do any two individuals of the same species differ from each other, but every living creature is in a continuous state of change from the first instant of life to the end of its existence. Environment, also, is eternally changing. With many regular cycles of change, and multitudes of sporadic changes, environment presents an endlessly varying succession of patterns. The amounts and rates of change either in body or environment are widely variable. There is no single correct structure which ensures health; health is compatible with any of many structural states, provided the other factors balance. Again, there is no single value for functional capacity which is the *sine qua non* of health. One or more of the body forces may vary within moderate limits without loss of health. Indeed, cyclic variations in function are characteristic of health. Obviously, quite wide changes in environment are compatible with health; in fact, variations of environment, within limits, are essential for health, and an argument can be constructed to show that life itself is impossible in a completely static environment.

The ideas expressed in this section may be restated as a formula,—though it is to be clearly recognized that this does not imply that either "health" or "disease" or any of the factors involved can be reduced to mathematically exact terms.

If H = "health."

If B = a selected example of body struc-

ture, at any given moment;

If F = a selected example of body function, at any given moment;

If A = sum of alterations in structure and function of body within a selected time interval;

If E = environment at any given moment;

If C = totality of changes in environment, and rate of change for a selected period;

and if B, F, A, E and C are each and all variables, then their resultant or sum will be variable, and H will represent their sum, within certain limited ranges for each letter.

That is, for given structures of body between B and B';

for given functional activity between F and F';

for given alterations between A and A';

for ranges of environment between E and E';

for given changes of environment between C and C';

$$H = B + F + A + E + C$$

From this it appears that Health is not a constant, but a condition of unstable equilibrium, maintained only when the resultant of many variables lies within certain narrow bounds.

If this equation serves no other purpose, it calls attention to the highly complicated details which blend into a unity which we call "health". Changes in one or more of the terms, beyond narrow limits, produce resultants which are not health. Life itself is impossible if any of the factors are very greatly different from "health values". In cases where one or more of the terms has such a value that the sum total amounts to something between "health", and "death", the resultant of the equation will be "disease". That is, according to the values for B, F, A, E and C, their sum will yield either "health", or "death" or "disease."

The *recognition* or diagnosis of "disease," especially milder examples, is effected, in large measure, by comparisons with standards of health.

In summary, "disease" may be defined as follows: Disease is either a process or a condition affecting either the entire person or a part or a function, characterized by lack of harmony between the part or function involved and the creature as a whole; or constituting a mal-adjustment between the diseased creature and its environment; or involving

both disturbed harmony within the body and maladjustment to environment. Disease is recognized and measured by making comparisons between the structure or function being studied and standards showing optimum structure, function and environmental adjustment.

One of the best definitions of disease comes, not from a medical, but biological pen. Huxley (Century Dictionary) said, "Disease . . . is a perturbation of the normal activities of a living body." This definition is too cryptic without enlargement, but serves as a good epitome of the discussion of the preceding pages.

SECTION II.

In a most interesting book, "Paleopathology," Roy L. Moodie⁴ has collected all the data available on the subject of prehistoric maladies. That disease is of ancient lineage has long been known. We have in the Ebers papyrus, accounts of maladies common in ancient Egypt, and through the medium of Sir Marc Armand Ruffer the mummies have revealed the antiquity of tuberculosis, tumor, and diseases of teeth, bones and joints, smallpox, prolapse, hydrocephalus, calculus, etc. Similarly there is evidence, positive, but less abundant, of the existence of diseases among the early peoples of North and South America, the diseases recognized including achondroplasia, bone and joint changes, goundou, uta, and a skin parasite.

A dimmer light guides us around the next turn down the corridors of time. There is only limited knowledge of man or his immediate forebears previous to the neolithic age. It is, therefore, surprising, in view of the relatively small number of specimens, and considering the ravages of postmortem change, that any should preserve the record of disease. Moodie gives illustrations of neolithic human remains showing tuberculous Pott's disease, vertebrae still containing flint arrowheads embedded in them, and one tibia with abundant bony growth around an arrowhead. It is estimated that these bones are about 7,000 years old. Evidences of trephining and of amputations of fingers are also relatively abundant, and widely distributed in neolithic and paleolithic relics.

In a long journey back into even earlier geologic time we find only a few remnants of prehistoric man or of his close relatives of human aspect. Of these, a Neanderthal elbow

shows a deformity, and one other, the most ancient vestige of humanity, exhibits a definite morbid condition. The fossil, some 500,000 years old, is the thigh bone of *Pithecanthropus erectus*. It is marked by a protruding overgrowth of bone like the growths seen today after certain bone injuries. The diagnosis of the condition was made by Rudolf Virchow in 1895. These glimpses of the past leave no doubt that disease accompanied the human race and our predecessors as far back as the record has been carried, and that there is a strong general resemblance between the oldest diseases and those of our own day.

From the facts just reviewed we can form no opinion as to the origin of disease and must penetrate much further into the remoter recesses of the geologic past. Disease is no distinctive scourge of humanity; it afflicts all animate creatures both plant and animal with much the same harsh touch. Moodie has given detailed consideration to diseases which can be recognized by the examination of fossils. It is impossible within the limits of this paper to do justice to his monumental study, in which he has presented a review of diseased fossil plants and animals, the latter group including injuries, parasitic and infectious processes, overgrowths and tumors. Lesions of teeth, bone and joint are frequently encountered. Actinomyces and spondylitis deformans are of great antiquity. A variety of fossil species, both plant and animal, are shown to have evidence of disease, but most of Moodie's examples are from the vertebrates, with mammals conspicuous. In general, more diseases are recognized in later geologic eras than in earlier ones. Examples of disease have been identified in fossils as ancient as the early and middle paleozoic, including injury, overgrowth, and parasitism.

The geologic record reviewed by Moodie is inconclusive as to the amount and varieties of disease. Very few individuals are perpetuated as fossils. Very few diseases could be recognized after fossilization. It is probable that many diseases will be overlooked, even if they are in the fossils, owing to our incomplete knowledge of the species and genera involved. Moreover, Moodie's conception of "disease" is too much influenced by the phenomena of infection and parasitism.

On the whole, we may conclude that disease existed at a very early period in the history of life, and that some of its contours are

recognizable in the paleozoic record. The most ancient diseases can be recognized by their resemblances to diseases of the modern world. We begin to perceive that disease is one of the great primeval factors in the scheme of life, but to understand its origin we must pursue our way much nearer to the dawn of Life.

SECTION III.

Of the origin of Life itself we can hardly speak more precisely than did the ancients. In the ancient Grecian legend Life was the offspring of Father Time and all-nourishing Mother Earth. If we adopt the same figurative language, we may say that some scientists incline to the view that the Sun God was the father of the first life on the face of the earth. Henry Fairfield Osborn says: "Certainly we appear to inherit some, if not all, of our physico-chemical characters from the sun; and to this degree we may claim kinship with the stellar universe. Some of our distinctive characters and functions are actually properties of our ancestral star. Physically and chemically we are the offspring of our great luminary, which certainly contributes to us all our chemical elements and all the physical properties which bind them together."⁸

In the vast interval of time since Life first appeared the earth's surface has experienced a titanic succession of changes. Mountains have risen and wasted away; continents have changed their outlines like clouds in a stormy sky; warm epochs with profusion of life, have been followed by the forbidding cold of glacial eras. Osborn⁸ speaks of fourteen periods of mountain-making in North America and of from twelve to seventeen continental submergings involving from half a million to four million square miles. Schuchert⁹ discusses climatic changes and glacier distribution both north and south of the equator, and their profound influence in the extinction of flora and fauna. Such enormous changes brought widespread destruction to living things, and may have threatened all animate existence. Over and over Life has met the menacing gestures of nature with subtle changes in form and function, thereby placating nature's hostility, and winning instead her friendship. The motion of Life back in the dim distance of prehistoric past, can still be recognized by the geologist almost as definitely though not in as great detail, as we see the motions on the

movie screen. The changes of form are as miraculous as those in Greek legend,—in fact, more wonderful, as Life's transformations, when cornered by a threatening world, have almost always followed an orderly course.

Whatever may have been the origin of Life, and whenever it may have emerged from the steaming Past, three facts seem to stand out significantly in the geologic record: (1) From paleozoic time many million years ago, onward until our own day, Nature has been prodigal in begetting life and in destroying it; (2) Every creature or species that has appeared during the course of time has survived only so long as it found sustenance and stimulus from the contacts with the outer world, and so long as it could resist the encroachments of the unfriendly forces, animate or inanimate, which played upon it; (3) Modern science confirms the idea of the ancient Greeks that "Father Time devours his own children;" for the paleontologists find that thousands of species and genera appeared, flourished and disappeared. Schuchert¹⁰ states that about 100,000 fossil species have been recorded and he estimates that only one out of every 2,000 forms has been preserved as a fossil, the other kinds having been completely blotted out of the geologic record.

The geologists have found it no easy matter to state with precision exactly why one species or another disappeared at certain definite geologic periods. A. R. Wallace is quoted: "To discover how the extinct species have from time to time been replaced by new ones . . . is the most difficult and at the same time the most interesting problem in the natural history of the earth."¹¹ Smith¹² says "The reason for this disappearance [of fauna] has always been uncertain."

The difficulties, however, are not completely baffling. In fact, biologists and geologists have a very fair conception of many of the forces and currents leading to extinction. Osborn¹¹ has assembled and analyzed the knowledge on this subject, and it is also summarized in discussions on evolution.

Life, for the individual as for the species and genus, has ever been a great adventure, a fight for dominion over a corner of the universe, or, perhaps, an effort towards harmonious adjustment to nature's rules. The first requisite for success in this adventure is a high degree of internal stability, or stamina,—a biologic fixity, or species-permanence. The second

requisite—at first thought incompatible with stability—is mobility, adaptability, or, may we go so far as to suggest "spontaneity." These two characteristics, permanence of species type, and adaptability, are characteristics which *are inherited*; the presence, the absence, the degree and the quality of these characteristics in any living creature depend entirely upon the properties of the heredity-substance, or germplasm from which the creature arose. The forces of heredity play a most important part in survival or extinction of a species. Throughout the ages there has been the play between the heredity-energies tending to conserve permanence of the individual, or type, and those working toward the adventure of a variation.

The geologic record gives unquestionable evidence of the truth of these statements. The story of life revealed by geology is briefly this: A species will be very abundant during one geologic age. Its fossils reveal a certain degree of anatomic development and differentiation evidently sufficient to meet the requirements of that species for that age. At a much later date the species will be absent from the fossil record, and the evidence will often reveal that, at the later period, the climate had altered; a glacier had appeared; a mountain range had arisen; an ocean had swept in, or some other immense agency had produced practically a new world unsuited to the established habits of the species. The fate of the species when a profound change of environment occurred was either (1) complete extinction; or (2) the survival of offspring so different from the parent stock as to constitute a new species, with anatomic and functional development permitting survival under the new conditions in the world; or, (3) migration of the species to a new home. This, in brief outline, is the story, told over and over a thousand times in the geologic record. In fact, it is the general rule that a species cannot survive profound or prolonged changes of environment save by the begetting of offspring, modified and adapted to the new conditions. Osborn⁸ says that of eighteen great orders of reptiles formerly abundant, all have disappeared except five, representatives of which are still alive. For almost every living type of today, much the same story seems to be true. Very few examples are known of genera or species which have survived with absolute stability of type, such as is shown in

the genus *Lingula*.⁸ As stated by Fiske,¹⁵ "The variant forms on either side [of the species type] have survived, while the constant forms have perished." Osborn, in the same spirit says,⁸ "The peculiar significance of heredity-chromatin, when viewed in the long perspective of geologic time, is its stability in combination with incessant plasticity and adaptability to varying environmental conditions and new forms of bodily action." Lull¹⁶ discusses some half dozen primitive types persisting through vast stretches of time and notes that high specialization, if unattainable, means a geologically brief career for the species.

The changes which permit of survival are changes of an heredity-type, or changes of the heredity-substance or germplasm. In a few cases, as in Waagen's studies of the fossil ammonites,⁸ it was possible to trace a series of minute changes in form, in a fixed direction, moving definitely and continuously, generation after generation, ending in the production of a new species.

Osborn¹¹ discussed the following relations between heredity, and survival—or—extinction of species: (1) Extinction has occurred from species-inability to evolve a foot suitable for new environment; (2) Extinction has followed inability to develop teeth suitable for new foods which displaced former foods; (3) Disability due to large size has been a factor in extinction. In this connection the adaptability of the germplasm may be illustrated by referring¹¹ to the pigmy elephant and pigmy hippopotamus of Crete, Cyprus, etc.; (4) Extinction has resulted from high, irreversible specialization suitable in one geologic age but unsuited in the next; (5) Extinction has resulted from the slowing down of the process of heredity-variation. Osborn⁸ refers to the extinctions among the reptiles. Evolution among the members of the five surviving orders has been either slow or arrested for three million years of Tertiary time. Osborn attributes this to slowing down of the exchange of heredity-material.

It is obvious that geology cannot reveal the finer detail obtainable from study of living forms, but the bold fact stands out that in geologic ages inability to adapt or to recede was at least an important factor in extinction. It is safe to go at least so far as to say that the forms dying out perished largely because they were no longer in harmony with their

environment. Except for the relatively few forms which possibly were blotted out by sudden destruction, this disharmony with environment must often have presented as some pathological condition, even though it were of a nature as obscure as reduced fertility, or sterility. *Moreover, we can confidently assert that mobility and variability of the germplasm or heredity-mechanism is an attribute which is as old as life itself.*

With the idea firmly in our minds let us turn from the geologic record to life in the world today. We are apt to think that the individuals in a species are practically identical, especially when we think casually about plants and animals with which we are not thoroughly familiar. But we know that it is nearly impossible to find two human beings perfectly identical, and the more intimately other species are studied the clearer does it become that there are individual differences among the members. This is well-known in connection with selective breeding of domesticated plants and animals. Morgan has shown that there are many types of offspring produced by the fruit fly, *Drosophila*; some well developed, others defective, others incapable of life. He has attempted to correlate the structural peculiarities with specific points of the heredity-chromatin, or genes. In other words, the *Drosophila* has a germplasm which combines an axial species-fixity with an outer zone of adaptability.

Among human beings variations of an heredity type are familiar to every anatomist and embryologist. They compose a long list including both structural and functional variation. The minor variants in ears; in finger prints; in arterial distribution; in size, shape, color, power, etc., may serve as suggestions of the diversity of heredity-variants among human beings. The monstrosities are obvious examples of variants from specific type. Between the milder and extreme variants are many hereditary conditions which are examples of disease. Aschoff⁵ is of the opinion that the human race is still in a state of evolution; that "there are many indications that advances in bodily development are still in progress." He also lists over fifty classes and types of disease which are to be regarded as due to errors in development and heredity. He includes⁵ certain errors of growth and metabolism, some examples of diseases of the nervous system and special senses, of muscle.

bone, cartilage, skin and blood-forming organs, some errors in the secreting glands and glands of internal secretion, and some tumors.

From this list it is evident that in a species as firmly fixed as the species *Homo sapiens*, there is still great and constant activity in the development of variants from type, and, further, that this very process is responsible for a large number of the ills of the flesh to which man is heir. We need not in this discussion consider whether the variants are recessive or dominant, but merely point out that they occur with frequency.

If it be clearly recognized that fixity of species is consistent with wide range of mobility in the production of variants, it must be pointed out that some of these variants are successful, that is, the variant individual survives. Other variants are failures, with death and disappearance as the price exacted. In the case of minor variations from the optimum for the species, the individual may survive but be handicapped in the race of life. *These failures and handicapping variants from type constitute one of the great divisions of disease and of pathology.* This first great group of diseases includes all abnormalities of an heredity nature, malformations and many defects of function and of growth. The processes producing the diseases just referred to are *internal*; they are the processes of heredity and growth.

As the biologist learns that variation through heredity is of fundamental importance in the origin of species and extinction, the pathologist learns that a great group of diseases traces back to the same root. The successful variants survive, the unsuccessful are *per se* "abnormal," or diseased. *"Abnormality," or disease, is more than a corollary,—it is an integral part of the process of natural selection.*

Geologic evidence points with broad, sweeping gesture to the conclusion that variations around the species axis have been active from the beginnings of Life. The geologist finds that the process of variation produced at least many of the surviving species. We may reasonably conclude that the same process produced many sub-optimum forms, as it does today, and that some of these unsuccessful experiments of the germplasm survived for a time as diseased individuals.

SECTION IV.

In the earlier sections of this article an

attempt has been made to demonstrate that variation among offspring is a constantly repeated phenomenon inherent in the heredity-schema. Some examples of disease are attributable to misadventures in the field of variation. Variation has likewise been the internal factor in living creatures which has led to the diversities among life-forms in our own time and in geologic eras. In some of the extinctions of earlier time, misadventures in the field of variation have apparently had a share. Either a species proved inept in impressing much needed variations upon the younger generations in a changing world, or else a species, which survived in one era by virtue of some highly specialized structure, found that structure an irremovable obstacle when external conditions changed in some important particular.

A consideration of *environment* in its relation to life, both ancient and recent, throws still stronger light upon that far remote "origin of disease."

Osborn¹¹ gives a critical discussion of the varied relations between environment and the extinction of mammalia. (a) Great changes in land levels, elevations and subsidences, have occurred over much of the earth's surface, accompanied by changes in climate, in rainfall and in seasonal variation. These changes permit, or compel a new distribution of plants and, therefore, of foods; permit the introduction of new competitors and cause or contribute to extinction of the inadaptible forms of life. After islands become separated from the mainland a profound effect is exercised by the new conditions upon the biologic balance and upon the characteristics of surviving forms. Dwarfing has occurred under these conditions. (b) Secular changes in climate profoundly alter plant life, and, therefore, foods, and competitors. The descent of a glacial age upon a warm or temperate land will wipe out many plant foods, or cover them with snow for long periods and in other ways so interfere with animal life as to cause extinction or lead to the establishment of successful variants. Under these conditions partial starvation, inadequate and unhealthy food substitutes, inbreeding and weather too severe for the young are factors which probably exert an influence. (c) Changes in the annual rainfall have an effect on vegetation and plant foods, and upon insect enemies. Heavy rainfall favors abundant and soft vegetation, suit-

able to certain jaw and tooth configuration. A drier climate favors the growth of harder grasses, which require a different jaw and tooth structure. Not only foods, but water supplies alter in distribution with changes in rainfall. With drier climates animals must travel further for water. Insect and protozoan enemies increase in wet climates and diminish in drier ones. On the other hand, I found in the dry grazing regions of Montana that the few and crowded watering places offered ideal conditions for the spread of infections.¹³ Osborn gives illustrations of the extinction-value of altered rainfall, especially of prolonged droughts, such as occurred in Europe and North America in former geologic times. (d) Animal life is dependent directly or indirectly on plant life. Osborn discusses forestation and deforestation and the alterations of plant balance in their relation to extinction. With every change in an important food, the delicate biologic balance is disturbed and there arises the possibility of extinction of a species. In the same way, the arrival of a new competitor for food or of a new insect or parasitic enemy may start a species towards extinction. (e) Reduction of the numbers of a species from any cause is unfavorable in the struggle for existence. Among other disadvantages from reduced numbers is the resultant in-breeding or lessened occurrence of widely spread cross-breeding with its advantages for the production of large numbers of variants.

It must be remembered that an exact understanding of the precise way in which the causes of extinction acted is at present impossible. It is even probable that some of the many extinctions were produced by causes which are at present entirely unknown. Moreover, in using the data assembled by Osborn and Moodie, we must recognize the danger of reasoning in a circle, that is, from the present to the past; from the past back to the present. If we recognize these difficulties, we may still draw conservative conclusions. It seems safe to say that the geologic record gives unmistakable evidence that the external conditions through which Life has threaded its way have not been static, but, on the contrary, have been in a continual process of change from the dawn of time to the latest second. Moreover, changes in external, or environmental, conditions appear to have caused at least some of the extinctions, and, further, seem

to have constituted the dies which stamped upon mobile species the forms which they were compelled to assume to survive. The changes developing in surviving types have been reciprocal to changes in the external world. A changing environment seems, then, to be a factor which has enveloped life from its start and seems to be an important agency in extinction and in the origin of species.

If we turn from the geologic record to our world of today, we observe that environment stands in intimate relationship to disease; of the causes of disease the environmental are usually the most obvious and the most frequent; there is literally no end to the variety of patterns which environment presents as settings for disease. Complicated, blended and interwoven though the environmental conditions usually are, as they are met with in medical practice, it is nevertheless possible and valuable to classify and tabulate them. This is usually done in works on general pathology. Aschoff⁵ gives a long section to environmental causes of disease. A wide variety of disease causes is considered; food and drink, air and breathing, atmospheric pressure, dryness and moisture, sunlight, radiant energy, electric energy, heat and cold, accident, injury, poisoning and infection by bacteria or other parasites. Disease may result from too much food; from too little; from deficiency or excess in one or more of the food elements; from wrong preparation of food; from eating indigestible poisonous or infected material. Similarly, with other causes there will often be relations between disease and the quantity or dosage, the quality, the intensity, or the time during which the cause acts. Nowhere are the intricacies of this subject more perplexing than in the case of the infectious diseases, which are so widely prevalent and which command so much of our thought today.

For each living creature there is, probably, an optimum environment. Slight alteration of external conditions may often be actually beneficial, and serve as a stimulus to the living form. Slightly greater alteration in even a single particular of environment is apt to produce disease. Wide departures from the optimum environment are incompatible with life. Between the optimum and the lethal environments are many varieties of external conditions amid which the individual may drag out a sickly and reluctant existence.

As it is rare for two individuals to have identically the same vital inheritance, it is probable that there are corresponding varieties of optimum standards and of disease levels within each species. Moreover, from conception to death the individual is not biologically static, but in continual change, offering an endless succession of changing requirements in regard to optimum environment and disease.

The geologic evidence is lacking in detail, but even when allowance is made for possible errors in interpretation, we are compelled to conclude that conditions on the face of the earth have not been in static equilibrium for any long geologic period; that life is possible and always has been possible only within a rather narrow zone of world conditions; that living creatures through uncounted generations have continually been subjected to injurious or unfavorable living conditions; that adverse conditions have always been the leading causes in the vast extinctions recorded in the rocks; that a changing environment is and always has been the great sieve through which Dame Nature presses abundant life to separate those creatures whose course is run from those still fitted to survive. We evidently contemplate here one of the great primeval methods of Nature.

The biologist and pathologist have a much more detailed view of the workings of environment upon life than is possible for the geologist. In the study of living creatures it is possible to observe delicate degrees of depressed vitality which are registered as disturbances of nutrition, disturbances of growth, disturbances of function, diminished fertility, etc. There is strong reason for the opinion that the vitality of living creatures today is largely due to the success of ancestral forms in meeting and surviving the thrusts of nature. It is at the price of many extinctions that we have acquired our ability to meet changes in temperature; our ability to withstand a variety of overfeedings and underfeedings; our mechanisms for repair through inflammation; for recovery from infectious disease, and many other deeply implanted vital properties.

It is by no means improbable that vitality of any living form would be distinctly reduced in a static environment. Indeed, it is hard to conceive of life, with its processes of respiration and nutrition, continuing in a static environment. The very processes of life themselves

disturb the equilibrium, continually converting stored energy into free energy.

The facts relating to environment and disease are endless and complicated, but at least it is unmistakably clear that environment supplies a constant source of causes of disease. Every unit of animate nature is exposed, at one time or another, to maladies due to unfavorable environment.

The evidence from geology and our own times leads to the conclusion that the conditions of external nature have acted on each separate living form from the beginnings of life; are acting on living things today, will continue to act as long as a living creature inhabits the earth. The powers of nature, and environment as a whole, have largely determined the extinctions of geologic times; have shaped the course of evolution, and, today, are sifting those fitted to survive under existing conditions from the unfit. Creatures living in environments distinctly below their optimum requirements are diseased. A great group of diseases are either entirely or largely of environmental causation. The relations between environment and life are of such an intimate nature that the conclusion is justified that deviations from optimum environment have recurred from the beginnings of life and that environmental diseases also had their start with the beginnings of life.

SECTION V.

From this survey it appears that disease is an integral part of the great scheme of life. It represents both the unsuccessful experiments of nature with variation, and also the misfits between living creatures and their environments. Most diseases belong in either one or the other of these classes, or in a group involving both sets of causes. In a world which has changed as often and as profoundly as the earth has since life appeared; in a world whose inhabitants are played upon by the myriads of stimuli in evidence today, *disease is as closely related to life and health as the hollow of the wave is to the crest. Disease is a necessary companion to health under the conditions of existence.*

If the conceptions of disease, which are here advanced, are valid, we may with reason assume that Disease is almost as ancient as Life, and that disease has figured conspicuously in moulding the genera of animals and plants now inhabiting the earth.

Moreover, there is no prospect of "disease" disappearing. Separate, individual types of disease (such as typhoid fever, malaria, mustard gas poisoning, or rickets), may be blotted out with the advance of civilization. But no species can expect to be exempted from disease so long as the germplasm furnishes non-identical offspring, and so long as each creature spins its own thread of life by means of internal forces, which may fail to harmonize with the uncontrollable, everchanging surge of events in the world of external nature.

I wish to express my thanks to several colleagues in the University of Virginia for their interest and advice in my writing of this paper. In particular am I indebted to Dr. Carroll Sparrow for many helpful suggestions, and to Dr. Ivey Lewis.

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UNUSUAL CASE OF BLOOD-CALCIUM DEFICIENCY.*

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I will not burden you with a resume of the role that calcium plays in the human economy, but will merely state that in my experience

the chief conditions associated with a low blood-calcium content are delayed clotting-time of the blood and the conditions associated with allergic reactions from protein sensitization, such as hay-fever, asthma, hyperesthetic or vaso-motor rhinitis, urticaria, etc. The blood-calcium may also be low during pregnancy, in tetany, spasmophilia, tuberculosis, rickets and other bone troubles; and while it might be found to be low in individuals suffering with many other diseases, I would not be inclined to look upon this deficiency as having any etiological relation to those diseases. In other words, I would not expect the raising of the blood-calcium content to have any great curative effect on any condition not included in the groups mentioned above, but that is exactly what has happened to me, and that experience is the cause of my presenting this case for your consideration.

CASE REPORT

The patient was a well-developed and well-nourished white woman, thirty years of age. In 1918, she first consulted me, complaining of pain, photophobia and redness of both eyes. The family history and her past history were excellent except that her father contracted pulmonary tuberculosis some time before his death, which was due to other causes. The eyes showed a typical, bilateral episcleritis, which was unusually resistant to treatment. I was never able to find any focal infection to blame it on. The Wassermann was, and has consistently been negative, the tonsils and adenoids had been cleanly removed, as had the appendix; there was no reason to suspect intestinal stasis; all the teeth were vital and sound, and the Roentgenograms showed no pathology at the root apices. After a month or more, I gave her a subconjunctival injection of 1:1500 cyanide of mercury in the worst eye, and the result was so gratifying that I injected the other eye a week later, with a rapid and apparently complete cure as the result.

A month later she returned with similar symptoms in the left eye only, the condition developing into a true, deep scleritis, for which I could do little or nothing. She was repeatedly referred to the best internists available, who gave her clean bills of health except for the local eye condition. They searched for some tuberculous condition with extreme care on account of her family history, but were

*Read before the eighth annual meeting of the Virginia Society of Oto-Laryngology and Ophthalmology, at Charlottesville, Va., April 30, 1927.

unable to find anything the least suspicious. The surgeon, in making a pelvic examination, found what he called very slight tenderness in the left lower quadrant, which he thought was of no significance. Meanwhile, the sclera was beginning to give way, so, at my insistence, he consented to do a laparotomy, and removed a small tubo-ovarian cyst, which was surrounded by many fine adhesions, and which contained a large, decomposing blood-clot. This was followed by a rapid subsidence of all inflammatory symptoms, and in about two weeks the eye was symptom-free, although the scleritis left a bluish, broad-based ectatic area located in the upper temporal quadrant a few millimeters behind the ciliary region, which is fortunately too far back to produce a bad cosmetic effect, and is too far forward to materially affect her central vision. Her central vision and muscle balance were normal before the attack, but six months later she had developed two diopters of myopic astigmatism and a left hyperphoria of two prism-diopters on looking forward, and one-half a prism-diopter on looking downward.

For two years she had no ocular discomfort while wearing the indicated cylindrical and prismatic glasses. Then, in 1921, she began developing phlyctenulae of the most stubborn character, first on one cornea, then on the other. None of the generally used ointments, powders, lotions or tonics seemed to shorten their duration or materially alleviate the discomfort. Remembering her family history, and also the reputed connection between these conditions and the scrofulous diathesis, I gave her 15 doses of old tuberculin, gradually working up to a dose of 1/20 milligram, with rather questionable results. The phlyctenulae continued appearing with less severity and at greater intervals for about two years.

In December, 1923, she developed a small ulcer at the anterior tip of the left lower turbinate, and a similar one on the septum nasi at a point just opposite. These ulcers were indolent, but resisted all ointments, antiseptics and the electric cautery. They remained unchanged until I employed ultra-violet radiation locally through a quartz rod. Daily use of this agent brought about a cure in ten days.

On September 24, 1926, she developed three phlyctenules on the right cornea, which rapidly broke down into small ulcers which could be seen only after staining with fluorescein. The lower limbus became congested,

and fine blood vessels could be seen in the lower cornea by using the slit lamp. The ulcers healed promptly, but the congestion at the limbus spread downward and soon developed into a violent scleritis. By blanching the superficial vessels with adrenalin, the deep lavender color of the sclera could be seen, but without such blanching it could not, as the surface reaction was so intense. The conjunctiva was raised to a height of about two millimeters, and really resembled a small boil. There was also some visual disturbance due to the appearance of floaters in the vitreous. She was given large doses of salicylate, atropine and dionin drops, and the electric thermophore was used, with no result. This continued for two weeks, when, for no particular reason except that it had not been done before, I had her blood-calcium content determined, and it was found to be 7.6. She was given calcium chloride intravenously with parathyroid hypodermically, and experienced marked relief in less than twelve hours. This was repeated daily for ten days, and after the third dose I could see a marked improvement. After the ten doses, she rested a week, and then took seven more. After a short rest, the blood-calcium was found to be 11.3, at which time she was discharged as well.

She had no further trouble until January, 1927, four months after her last treatment, when she started with her usual symptoms of burning and episcleral congestion while away on a trip. It got so bad after a few days that she cut her trip short and came back, at which time she had a blood-calcium of only 9. She was given twenty grains of calcium lactate three times a day, and took daily exposures to ultra-violet rays, using the Alpine lamp all over the body. The result was just as happy as the former one, all symptoms disappearing in a day or two with a rise of her blood calcium to 10.

She has had one other slight relapse, in the latter part of February, associated with a calcium index of 9, which was treated as above, with the same result.

Since this last flare-up she has been on a diet rich in calcium, and has taken Alpine light radiations once or twice a week, just enough to keep her well tanned, and has had no further trouble. She has been advised to continue her diet, and spend as much time as possible this summer at the beach in her bathing suit.

REMARKS

I would like very much to be able to report a series of scleritis cases, but this is the only one that I have seen in recent years.

I do not claim any credit for the happy termination of this case (if indeed, it be a termination) because it was not the result of reason, but merely a fortuitous circumstance that I stumbled on the right remedy in blundering around, grasping at straws.

I do not claim that calcium deficiency is always the cause of scleritis, or even that it was the cause in the case reported. I merely claim that, in this case, the patient had three attacks that started alike in the same place, that the blood calcium was low in each instance, and that the condition got well promptly as soon as the blood calcium was brought up.

My plea to you gentlemen is two-fold:

First:—Scleritis is a disease fraught with such dire possible consequences to the eye, and the etiology and treatment are so uncertain and unsatisfactory at present, that I beg you to study the blood-chemistry of all such cases that come under your care. Probably no one of us sees a sufficient number of such cases to arrive at anything definite, but, if we all keep it in mind, we may be able to prove whether or not all cases of scleritis have calcium deficiency, and whether or not the administration of calcium may be relied on.

Second:—So far as I know, no one has ever hinted that there may be a connection between scleritis and calcium deficiency. This case seems to indicate that there might be. Might it not play a part in the etiology of other poorly understood diseases? My suggestion is that, whenever you have blood chemistry done for any other reason, you include a determination of its calcium content.

810 *Medical Arts Building.*

A METHOD OF CONTROLLING SKIN IRRITATION FOLLOWING COLOSTOMY.

By WILLIAM B. MARBURY, M. D., Washington, D. C.

The principal reason for bringing the two cases that I have to your attention is to show a simple device for controlling some of the annoying effects to the patient, of a colostomy. In both cases, an opening was made in the caecum to relieve an obstruction in the sigmoid, which, for reasons to be shown later, could not be directly attached. Both patients were operated on about three years ago for

supposedly carcinoma of the sigmoid. One died a year later with more or less general carcinomatosis and the other is still living. In neither one was an exploration done. Both were done under local anaesthesia.

The device used to prevent constant soiling and irritation of the skin in the region of the wound was to fit a soft rubber tube, about three inches long and one-half inch wide, into the



Figure 1.—Fistulous opening into the cæcum through a McBurney incision. The tube shown lying on the abdomen.

opening in the gut and clamp the projecting end with a screw-clamp. Vaseline gauze was placed immediately around the tube and the clamp rested on this. A small dressing of gauze was placed over the area and held with adhesive. One patient further modified this arrangement, apparently much to his satisfaction, by placing a safety pin through the end of the tube and closing the lumen by inserting a tip of gauze. I saw him quite recently and he told me that he had no inconveniences from his artificial anus. Twice a week, a visiting nurse irrigates the colon through the tube and except on these occasions, he does not have to change the dressing. Nothing passes by the usual route.

It is interesting to note that, following the caecostomy, more fecal matter passed by the natural route than before. This is probably due to the fact that the bowel content is more

fluid because of irrigation from above and less congestion in the region of the stricture. The tube only works satisfactorily when the gut has been sutured to the peritoneum and not brought to the surface. In the latter case, there is an eversion of the mucous membrane, especially during peristalsis, which prevents it from fitting snugly.

Smith and Christensen have reported a method of preventing skin excoriation, which seems worthy of mention. They experimented with different substances to neutralize digestive action of enzymes poured out in the bowel secretions, and found that kaolin was probably the best. They mixed kaolin and glycerine to make a thin paste and spread it around the fistula. Powdered kaolin is then dusted on and a dressing is applied. Com-



Figure 2.—Tube inserted and held in place by a safety pin.

plete relief is given for from five to twelve hours when the application is renewed.

Case 1.—Mrs. W. B., seen first on June 21, 1924, complaining of pain in the abdomen and constipation. Her general health had always been good until a year before this when she had trouble with her heart—myocarditis with fibrillation. For three months she had had pain at times, often severe, in the right side of the abdomen, and marked constipation. Her bowels only moved with the aid of drastic cathartics, and were quite fluid—no formed

stools. On the 20th, she vomited several times, but that evening she had the best bowel movement in ten days. This was probably the result of castor oil taken on the 18th. She passed some blood from the rectum but, since she had hemorrhoids, it was difficult to be sure of the source. Physical examination showed woman, seventy-seven years old, rather well preserved. Head and neck negative. Crepitant rales could be heard at the bases of both lungs. Heart enlarged, but no murmurs. Constant fibrillation. Heart beats 120-130, with only half this number transmitted to the wrist. Some swelling of the ankles. Systolic blood pressure 180. The abdomen was considerably distended and a fixed mass could be felt in the lower left quadrant. This was about the size of an egg but difficult to outline. Rectal examination revealed nothing of importance. Dr. Kerr saw the patient in consultation and concurred in the diagnosis of carcinoma of the sigmoid.

She was removed to Emergency Hospital and under local anaesthesia a McBurney incision was made and the caecum brought into the wound and sutured with f. b. s. to the peritoneum. A purse string suture was placed in the part of the gut presenting but left loose. Two guide sutures were placed opposite to each other for traction and identification. The wound was partially closed. On the following day a small opening was made into the bowel and a No. 20 catheter inserted. The purse string was pulled taut. She had a stormy convalescence because of her heart and was in the hospital for three weeks. She lived just about a year, but, in the interim, she was comparatively comfortable, and was able to get about and take an occasional walk or drive. She was irrigated through the tube every second day. There was no soiling and no irritation of the skin.

Case 2.—Mr. F. A., male, 65 years old. Seen February 27, 1924, complaining of cramps in his abdomen—with constipation. His general health had been good until two weeks before. He had taken all kinds of cathartics without much result. An X-ray, taken by Dr. Merritt, showed as follows: "Examination of the chest shows increased width of the thoracic aorta to the point of establishment of aneurysm. The stomach is normal, as is the duodenal cap. No shadow of gall-stone. The colon shows enormous quantities of gas trapped throughout, with spaces in the terminal third. The patient could not retain an enema in the slightest

amount. This is doubtless due to some obstruction, probably in the recto-sigmoidal apparatus." There was no difference in the pulse at the wrist and no bruit could be heard. The blood pressure was 212 systolic. The urine showed a faint trace of albumen and a few hyaline and granular casts. The abdomen was markedly enlarged and a definite pattern of distended coils of intestines could be seen. There had been no vomiting. No blood or mucus from the rectum. Rectal examination negative.

A colostomy was done on February 29, 1924, following the same technic as in the previous case.

It is worthy of note that in a buried bowel



Figure 3.—Much smaller piece of gauze may be used to protect the skin.

such as this, i. e., when the bowel is sutured to the peritoneum and not brought to the surface, it is important to pack off with vaseline gauze so as to prevent the muscles from crowding in and obscuring the purse string suture. If this precaution is taken, an opening can be made in the gut later, generally the following day, with very little retraction and, consequently, very little discomfort.

I have not had an occasion to use the tube in a left-sided colostomy, but see no reason why it should not work as well.

1015 Sixteenth Street.

THE RESULTS IN THE TREATMENT OF PULMONARY TUBERCULOSIS BY ARTIFICIAL PNEUMOTHORAX IN SEVENTY-SIX CASES.*

By W. L. DUNN, M. D.,
and
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The purpose of this report is to tabulate the results obtained in seventy-six cases of pulmonary tuberculosis treated by artificial pneumothorax. These patients received treatment in this sanatorium for varying periods of time during the six years that this institution has existed. It is not within the scope of this article to consider the relative merits and demerits of artificial pneumothorax in the treatment of pulmonary tuberculosis, nor is it the intention of the authors to discuss at any length the indications for this procedure. Our chief interest in this paper lies in the results obtained and not in a discussion of principles. However, to accomplish this end it will be necessary briefly to mention the indications for this treatment as they have existed here, with a few cursory remarks on the dangers of this operation.

The indications for artificial pneumothorax as it has been employed here have been four in number:

1. *Progressive Disease.*—Under this heading are grouped those cases which mostly showed extensive involvement and failed to improve with rest, proper diet and routine sanatorium treatment, those exhibiting an extension of the process, and those in whom complications, such as tuberculosis of the larynx, were arising. In a few cases it has been tried as a sort of forlorn hope, cases in which the possibility of success was small,—where there was everything to gain and nothing to lose.

2. *Uncontrollable Hemorrhage.*—Cases in which the usual medicinal measures have failed and the patient is steadily growing weaker from loss of blood. The difficulties encountered are inability to determine which lung the hemorrhage is coming from, and inability to compress the lung because of extensive adhesions. Usually the patient is conscious of some discomfort—either actual pain or soreness—on the affected side, and frequently large bubbling rales can be heard on that side during inspiration if examination is made soon after blood-spitting began.

Routine X-ray films (stereoscopic) and sub-

*Treated at the Blue Ridge Sanatorium, Charlottesville, Va.

sequent physical examinations are available for study should an emergency arise and necessitate the making of a quick decision as to whether artificial pneumothorax is a justifiable procedure.

3. *Spontaneous Pneumothorax.* — Usually the patient has a rather extensive pathological process in the lung which has collapsed spontaneously, consequently continued compression is advantageous to the patient. Of course, the degree of collapse maintained is governed by the condition of the lung on the opposite side.

4. *Pleurisy with Effusion.* — The fluid withdrawn is replaced by an approximately equal volume of air. If pneumothorax is not continued by artificial means, the inflamed parietal and visceral layers of pleura will become adherent and cause the patient considerable pain and discomfort. Often there is parenchymatous disease present which continued compression helps.

The complications which may arise during the course of such treatment are numerous, the more important of which are:

- 1. Infection of the contralateral lung.
- 2. Empyema—either from improper technique, infection from puncturing the lung, or the breaking of an adhesion with a tearing of the visceral pleura.
- 3. Embarrassment of the circulation by displacement of the mediastinum, either suddenly by too large a filling, or gradually by increasing the intrapleural pressure beyond the point of safety.
- 4. Pleural effusion—a fairly frequent complication.
- 5. Puncture of the lung with consequent spontaneous pneumothorax.
- 6. Pleural shock,—a very rare condition.
- 7. Air emboli,—also rare.

Of these complications, infection of the contralateral lung (3 cases), empyema (1 case), pleural effusion (11 cases) and embarrassment of the circulation by increasing the intra-

pleural pressure too rapidly (several cases), have been experienced in this series of cases.

Quite recently, one case, which developed a caseous bronchopneumonia, was started on artificial pneumothorax, and in less than a month she had a large area of consolidation in the hilum region of the opposite side where previously there had been no involvement. Two similar cases convince us that such a possibility should not be considered too lightly, for it occurs more frequently than is usually thought. It is usually regarded as being the result of aspiration of infected material from the compressed lung, and seems to occur in much the same manner as aspiration following hemorrhage.

One case developed empyema, from what cause could not be determined. Following the institution of surgical drainage the patient has improved considerably.

The danger of rapidly collapsing the lung and thus embarrassing the circulation through mediastinal pressure displacement is an ever-present one and must be constantly borne in mind. In the average case the best results are obtained by injecting a small amount of air (average 200—300 c.c.) each time, with a short interval between refills. In this institution all pneumothorax cases are examined fluoroscopically about once every six weeks or two months, and, if necessary, X-ray plates are made at that time. This gives serial plates for study and comparison. Such an examination enables the physician to determine the degree of collapse as well as the relative position of the mediastinum and its structures, and if taken in conjunction with the bedside notes on the patient, too rapid an increase in the intrapleural pressure can be avoided.

It is by no means possible to collapse a lung in every case because of the existence of adhesions. Table I presents the successes and failures in attempts to compress a diseased lung. Of the seventy-six cases in this series,

TABLE I
PER CENT OF CASES IN WHICH LUNG COULD NOT BE COLLAPSED BY ARTIFICIAL PNEUMOTHORAX

No. Of Cases	RESULTS			
	SATISFACTORY COLLAPSE		FAILURE TO COLLAPSE LUNG	
	NUMBER	PER CENT	NUMBER	PER CENT
76	66	86.82	10	13.18

a satisfactory collapse was secured in sixty-six, or 86.82 per cent. In the remaining ten cases, or 13.18 per cent, failure was attributable to extensive adhesions which bound the lung to the chest wall.

Table II-A comprises a list of forty-five patients in whom collapse of the diseased lung by artificial pneumothorax was accomplished and who are no longer patients in this sanatorium. First, the indication for pneumothorax is given together with the number of cases receiving it; next, the risk, whether good, fair, poor, or very poor; lung involvement, whether right or left; the average age of the patients in each group; the age limits in each group; and, most important, the results, whether the patient is immediately improved or unimproved, as well as the ultimate outcome of the treatment.

The classification of patients, according to what sort of risk each case was, is purely ar-

above the fourth rib to apex) in the opposite lung becomes a "poor risk;" and one having the entire contralateral lung diseased is a "very poor risk."

Under the heading "results", immediate improvement indicates a lessening of symptoms, such as cough, expectoration, lowering of temperature, improved appetite and a gain in weight. The patient feels better and to all appearances is improving. Ultimate improvement signifies an amelioration of symptoms and an improvement in the pulmonary condition. It must be remembered that according to the diagnostic standards of the National Tuberculosis Association, no patient who has artificial pneumothorax can be discharged from a sanatorium as better than "improved."

Table II-A includes forty-five cases, twenty-six of whom received artificial pneumothorax because of progressive disease, thirteen for the control of hemorrhage, five cases of spontane-

TABLE II-A.
PATIENTS DISCHARGED FROM THE SANATORIUM

INDICATION	No. CASES	RISK	LUNG		AVE. AGE	AGE LIMITS	RESULTS			
			L	R			IMMEDIATE		ULTIMATE	
							IMPROVED	UNIMPROVED	IMPROVED	UNIMPROVED
Progressive Disease	26	Good	1	3 (4)	25	15-51	3	1	4	
		Fair	5	1 (6)			4	2	4	2
		Poor	5	5 (10)			8	2	7	3
		Very Poor	4	2 (6)			2	4	2	4
Hemorrhage	13	Good	2	(2)	29	16-45	17	9	17	9
		Fair	1	(1)			2		2	
		Poor	5	2 (7)			1		1	
		Very Poor	1	2 (3)			7		6	1
Spontaneous Pneu- mothorax	5	Good			31	21-37	3			3
		Fair					13		9	4*
		Poor		2 (2)			2		2	
		Very Poor	2	1 (3)			2	1	2	1
Pleurisy with Effusion	1	Good			57	57	4	1	4	1
		Fair					1		1	
		Poor					1		1	
		Very Poor								

*In three cases not listed adhesions prevented collapse of the lung, but hemorrhage stopped immediately.

bitrary and is based solely on the extent of the involvement in the contralateral lung. A case with unilateral pulmonary tuberculosis is a "good risk;" one with a minimal amount of disease (above the second rib) in the opposite lung may be considered a "fair risk;" while one with moderate involvement (disease

ous pneumothorax and one case of pleurisy with effusion.

Of the twenty-six cases of progressive disease, four were good risks, three of whom were immediately improved and one unimproved, while all four were ultimately improved. Of six fair risks, four were both immediately and

ultimately improved, and two showed no benefit at all. Of the ten poor risks eight were immediately improved and two unimproved, while seven left the sanatorium as improved and three as unimproved. Of the six very poor risks, two were both immediately and finally improved and four showed no response whatever.

In thirteen hemorrhage cases, two were good risks, and both improved immediately and continued to progress as did the one fair risk. All seven poor risks were immediately improved, of which six were permanently benefited and one was not. Three very poor risks showed immediate improvement in that their hemorrhage was controlled and symptomatically they were better, but ultimately the treatment did no good.

Of five cases of spontaneous pneumothorax, two were poor risks which improved both immediately and ultimately, as did two of the three very poor risks. One very poor risk did not show improvement.

The only case of pleurisy with effusion, which was a good risk, improved steadily from the beginning of treatment, and has now resumed his professorial duties in college.

Table II-B is a summary of the twenty-one cases now receiving pneumothorax treatment at this sanatorium, seventeen on account of progressive disease and four because of hemorrhage. Of the seventeen so treated for progressive disease, seven were fair risks, of which number six were both immediately and ultimately benefited, one showed no immediate effect, and at present treatment has not been

continued long enough for the ultimate result to be determined. Four of the five poor risks were improved immediately and ultimately, while one has showed no immediate improvement and the ultimate result is doubtful. Of five very poor risks, four were immediately improved and one unimproved. Ultimately, one was benefited and three were not.

Of the four cases given artificial pneumothorax for the control of hemorrhage, two were fair risks, and two were very poor risks, but all four were both immediately and ultimately improved.

Table III-A gives a summary of the essential points in Tables II-A and B. Of forty-three cases having progressive disease as their indication, thirty-one (72.1 per cent) were immediately improved, with twelve (27.9 per cent) showing no change; twenty-eight (65.12 per cent) were ultimately helped and twelve (34.88 per cent) were not (three cases have not received treatment long enough for the ultimate result to be determined). Of the seventeen hemorrhage cases, all seventeen (100 per cent) had their hemoptysis controlled, while thirteen (76.5 per cent) were ultimately improved. In five cases of spontaneous pneumothorax, four (80 per cent) were both immediately and ultimately improved, while one (20 per cent) showed no effect. The only case of pleurisy with effusion was immediately and ultimately improved.

Of the sixty-six cases in which the lung was successfully collapsed, fifty-three (80.3 per cent) were immediately improved and forty-six (73 per cent) were ultimately benefited.

TABLE II-B.
PATIENTS NOW RECEIVING PNEUMOTHORAX TREATMENT

INDICATION	No. CASES	RISK	LUNG		AVE. AGE	AGE LIMITS	RESULTS			
			L	R			IMMEDIATE		ULTIMATE	
							IMPROVED	UNIMPROVED	IMPROVED	UNIMPROVED
Progressive Disease	17	Fair	5	2 (7)	28.9	9-50	6	1	6**	
		Poor	3	2 (5)			4	1	4**	
		Very Poor	2	3 (5)			4	1	1**	3
Hemorrhage	4	Fair			18	14-22	14	3	11	3
		Poor	1	1 (2)			2			
		Very Poor	2				2		2	
							4		4	

**Three patients, one fair risk, one poor risk, and one very poor risk, have not been treated long enough for the ultimate result to be evident.

TABLE III-A.
SUMMARY

INDICATION	No. CASES	RISK	LUNG		AVE. AGE	AGE LIMITS	RESULTS							
							IMMEDIATE				ULTIMATE			
			IMPROVED				UNIMPROVED		IMPROVED		UNIMPROVED			
			No.	%			No.	%	No.	%	No.	%		
Progressive Disease	43	4 13 15 11	25	18	26.5	9-51	31	72.1	12	27.9	28	65.12	12	34.88*
Hemorrhage	17	2 3 7 5	12	5	26.4	14-45	17	100.			13	76.5	4	23.5**
Spontaneous Pneumothorax	5	2 3	2	3	31	21-37	4	80.	1	20.	4	80.	1	20.
Pleurisy with Effusion	1	1		1	57	57	1				1			
	66	7 16 24 19	39	27	27.3	9-57	53	80.3	13	19.7	46	73.1	17	26.9

*One patient classified as a fair risk and two considered as poor risks have not been taking pneumothorax treatment long enough for the ultimate result to be determined.
**One former patient and two now in the sanatorium at present hemorrhaged and an attempt was made to collapse the affected lung, but was unsuccessful because of numerous adhesions; however, all three patients were free from further hemoptysis at that time, whether as a result of the few hundred c.c. of air injected into the pleural sac or from something else, cannot be determined. They have been omitted from the list above.

These figures for the ultimate result do not take into account three cases which have received treatment long enough to determine the final result. In thirty-nine the left lung was collapsed, and in twenty-seven the right lung was compressed.
Table III-B classifies the results according to the type of risk each patient was. Of the sixty-six cases in this series, seven were good risks; of this latter number, six (85.7 per cent) were immediately improved, and all seven (100 per cent) were discharged as improved. Of the sixteen fair risks, thirteen (81.3 per cent) were immediately improved and 3 (18.7

per cent) unimproved, while thirteen (86.67 per cent) were ultimately improved and two (13.33 per cent) were unimproved (ultimate result doubtful in one case). Twenty-four were poor risks, of whom twenty-one (87.5 per cent) were immediately helped and three (12.5 per cent) were not; nineteen (82.6 per cent) were ultimately improved and four (27.4 per cent) continued to grow worse (ultimate result doubtful in one case). In nineteen cases classified as very poor risks, thirteen (68.42 per cent) were immediately benefited, while six (31.58 per cent) were not. Seven (38.88 per cent) were ultimately improved and eleven

TABLE III-B.
RESULTS ACCORDING TO THE TYPE OF RISK

RISK	No. CASES	RESULTS							
		IMMEDIATE				ULTIMATE			
		IMPROVED		UNIMPROVED		IMPROVED		UNIMPROVED	
		No.	%	No.	%	No.	%	No.	%
Good	7	6	87.5	1	14.3	7	100		
Fair	16	13	81.3	3	18.7	13	86.67	2	13.33*
Poor	24	21	87.5	3	12.7	19	82.6	4	27.4*
Very Poor	19	13	68.42	6	31.58	7	38.88	11	61.12*
	66	53	80.3	13	19.7	46	73.1	17	26.9

*One patient has not been receiving pneumothorax treatment long enough for the ultimate result to be determined.

(61.12 per cent) were ultimately unimproved (ultimate result doubtful in one case).

Table IV shows the number and per cent of patients receiving artificial pneumothorax who at some time during the course of treatment gave evidence, either on X-ray or physical examination, of fluid in the pleural

sanatorium, twenty-three (74.2 per cent) gained from two to forty lbs., an average gain of fifteen lbs.; two neither gained nor lost, and four lost weight. Of the nineteen patients now receiving this treatment, eleven (58 per cent) gained from 3.5 to 45 lbs., an average gain of 16.05 lbs.

TABLE IV.
PLEURAL EFFUSION AS A COMPLICATION OF ARTIFICIAL PNEUMOTHORAX

NUMBER OF CASES	SHOWING FLUID		ASPIRATED		SPONTANEOUS PNEUMOTHORAX		AMOUNT OF FLUID TOO SMALL FOR ASPIRATION	
	No.	%	No.	%	No.	%	No.	%
57	27	47.36	13	22.8	2	100	14	24.56
Excluding cases with spontaneous pneumothorax.								
55	25	45.45	11	20.			14	25.45

NOTE: Four cases not included in the figures given above were admitted with spontaneous hydro-pneumothorax and had to be aspirated, as did one case, also not included in these figures, admitted and diagnosed as having pleurisy with effusion.

cavity. Of fifty-seven cases, twenty-seven (47.36 per cent) showed fluid at some time. Of this number, thirteen (22.8 per cent) required aspiration. Of the twenty-seven cases presenting fluid, fourteen (24.56 per cent) had such small amounts that its presence was noted in routine physical or fluoroscopic examinations, but aspiration was never considered necessary.

The second part of the table excludes the two cases of spontaneous pneumothorax mentioned in the first part, and deals with cases of artificial pneumothorax only. Of the fifty-five cases, twenty-five (45.45 per cent) had fluid; eleven cases (20 per cent) required aspiration, while fourteen (25.45 per cent) showed very small amounts.

Table V indicates the amount of weight gained by the patients who improved. Of thirty-one cases now discharged from this

Table VI gives the average temperature curve of thirty-nine patients who were immediately improved by artificial pneumothorax. The average temperature for one week previous to the institution of this treatment was

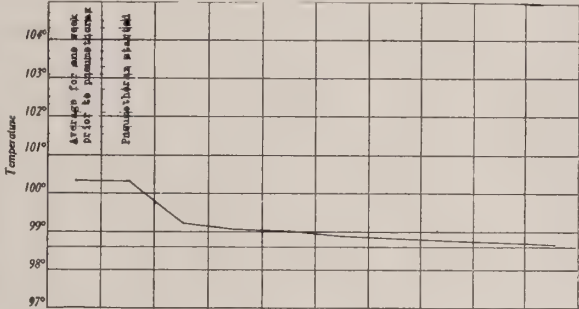


Table No. VI, showing average temperature curve of thirty-nine patients before and after pneumothorax was started.

100.4 F.; after one week of artificial pneumothorax, 99.3; after two weeks, 99.1; after three

TABLE V.
WEIGHT TABLE
A. PATIENTS DISCHARGED AS ULTIMATELY IMPROVED

NUMBER CASES	NUMBER GAINING	NUMBER STATIONARY	NUMBER LOSING	LEAST GAIN-LBS.	GREATEST GAIN-LBS.	PER CENT GAINING	AVERAGE GAIN-LBS.
31	23	2	4	2	40	74.2	15.0
B. PNEUMOTHORAX PATIENTS NOW IN THE SANATORIUM							
19	11	0	4	3.5	45	58	16.05
50	34	2	8	2	45	68	15.34

weeks, 99; after one month, 98.9; and after two months, 98.7.

CONCLUSIONS .

1. The indications for artificial pneumothorax as they have existed in this sanatorium are chiefly progressive disease, hemorrhage, spontaneous pneumothorax and pleurisy with effusion.

2. The dangers of this procedure are—spread of the infection to or in the contralateral lung, empyema, embarrassment of the circulation through displacement of the mediastinal structures, pleural effusion, puncture of the lung with subsequent spontaneous pneumothorax, pleural shock, and air emboli. Of these, the first four have been encountered here.

3. Of the seventy-six cases in this series, satisfactory collapse was secured in sixty-six (86.82 per cent). In the other ten cases adhesions were principally responsible for failure.

4. In forty-three cases of progressive disease, thirty-one (72.1 per cent) were immediately improved, and twenty-eight (65.12 per cent) were ultimately improved; of seventeen hemorrhage cases, seventeen (100 per cent) stopped hemorrhaging immediately, and of these thirteen (76.5 per cent) were finally improved; in five cases of spontaneous pneumothorax, four (80 per cent) were both immediately and ultimately improved; one case of pleurisy with effusion was both immediately and ultimately benefited.

5. The results of artificial pneumothorax treatment in pulmonary tuberculosis seem to depend in a large measure upon the condition of the contralateral lung. Of seven good risks, six (85.7 per cent) were immediately improved, and all seven (100 per cent) were ultimately improved; of sixteen fair risks, thirteen (81.3 per cent) were immediately improved and thirteen (86.67 per cent) were ultimately improved (one case has not been receiving treatment long enough for the ultimate result to be determined); of twenty-four poor risks, twenty-one (87.5 per cent) were immediately improved and nineteen (82.6 per cent) were ultimately benefited (one case has not been receiving treatment long enough for the ultimate result to be determined); of nineteen very poor risks, thirteen (68.42 per cent) were immediately helped, and seven

(38.88 per cent) were ultimately improved by this treatment.

6. Of fifty-seven cases, twenty-seven (47.36 per cent) showed fluid in the pleural cavity. In thirteen (22.8 per cent) of these aspiration was necessary; in fourteen cases (24.56 per cent) the amount was too small for aspiration to be considered. Excluding two cases of spontaneous pneumothorax, eleven (20 per cent) of the remaining fifty-five required aspiration; fourteen (25.45 per cent) had fluid in amounts too small to produce symptoms or discomfort, and did not necessitate its removal.

7. Of fifty patients who were improved by artificial pneumothorax, thirty-four (68 per cent) gained in weight. The number of pounds gained ranged between 2 and 45; the average gain was 15.34 pounds.

8. In thirty-nine cases the average temperature for a week prior to the beginning of pneumothorax treatment was 100.4 F.; one week after it had dropped to 99.3; two weeks, 99.1; three weeks, 99; one month, 98.9; and two months, 98.7.

9. Finally it must be concluded that pneumothorax is a valuable asset in the treatment of pulmonary tuberculosis, that the results depend principally on the selection of the cases and that it should be used more when indicated.

HEMORRHOIDS—INJECTION OR OPERATION.*

By WILLIAM W. RIXEY, M. D., Richmond, Va.

INJECTION

The origin of this method is obscure but it assuredly originated in America and was for many years practiced by quacks who were known as "pile curers". In spite of the complications and occasional disasters occurring in their unskilful practice, the method has survived—a tribute to its efficacy,—and today there is no doubt that its popularity is increasing among rectal surgeons and other students of the subject. I venture to state that the contempt held for this method of treatment by many practitioners would be changed to an attitude of high regard should they have the opportunity to observe a series of skilfully treated cases. Investigation through studies of rectal anatomy, pathology, and tissue changes subsequent to injection, has

*Read by invitation before the Warren, Rappahannock and Page Medical Society, in Front Royal, Va., April 19, 1927.

rescued the method from the field of quackery, eliminated the hazards to the patient, and placed the treatment on a truly curative and scientific basis.

Hemorrhoids are usually divided into three groups—internal, interno-external, and external. It is in that rather large class of uncomplicated internal hemorrhoids which either do not protrude or which protrude and can be replaced easily that the efficacy of the injection treatment is best demonstrated. I would like to accentuate the fact that hemorrhage from this type of hemorrhoids is quickly and permanently relieved by injection, and if bleeding is present when the treatment is begun, its source should be determined and the responsible hemorrhoid or hemorrhoids injected during the patient's first visit.

Concerning the next class, interno-external hemorrhoids, disagreement exists. In recent articles by two eminent proctologists, both of whom are advocates of the injection treatment, one unqualifiedly asserts that he uses the injection method and the other states that he invariably advises operation. It seems to me that a correct analysis of the structure of the hemorrhoid is the deciding factor in determining whether or not this type is suitable for injection. If the varicosities are abundant in the external portion of this combined type, it is my opinion that injection should never be used. On the other hand, when the varicosities are largely confined to the internal portion, the external portion consisting chiefly of interstitial hypertrophy and edema, this method may be used with satisfactory results.

External hemorrhoids are not suitable for the injection treatment.

For the injection I use a 5 per cent solution of quinine and urea hydrochloride. The position of the patient is of no consequence so long as a good view of the anal canal is obtained. Enough of the solution, from a few drops to one c.c., is used to moderately distend the tumor. A mild degree of blanching ensues. Three or four tumors, unless extremely large, may be safely injected at one sitting. Four to seven treatments are usually necessary and the interval between should be four to seven days. Symptomatic relief, especially with bleeding hemorrhoids, may follow the first injection, but insufficient treatment invites recurrence. The injection causes little or no pain, is more economical than

operation, and is strictly an ambulatory treatment. With a careful technique and attention to detail, a proper placing of the injection and the use of a correct quantity of the solution, complications will not occur.

The cure of internal hemorrhoids by the injection of a strong solution of quinine and urea hydrochloride is brought about in the following manner: A few minutes following the injection, a fibrinous exudate forms within the interstitial tissue. This exudate maintains extravascular pressure and is, in time, partially replaced by fibrous tissue which, like all scar tissue, tends to contract.

The fibrous tissue connects the mucosa and submucosa with the muscular coat, prevents prolapse, slowly obliterates the dilated veins and causes a gradual shrinkage of the hemorrhoid.

OPERATION

Since the purpose of this paper is to deal with curative measures, palliative treatment, though valuable in acute conditions and when more radical methods are refused, will not be discussed. Operation is indicated and injection contra-indicated in all cases where marked infection and inflammation have occurred. The presence of fistulas, fissures, polyps and other surgical conditions of the ano-rectal region would naturally lead one to advise excision of the hemorrhoids, combined with the surgical treatment of the accompanying pathology. A certain type of interno-external hemorrhoids and all external hemorrhoids complete the list in which operation is indicated.

General anesthesia is rarely necessary in rectal surgery. Hemorrhoidectomies may be performed under infiltration with novocaine, but sacral anesthesia is the method of choice. This extra-dural nerve block has the advantage of safety for the patient, the operative field is not distorted, sufficient relaxation of the external sphincter muscles obtains, and sensation returns more slowly, thus minimizing post-operative pain.

As for the method of removal, I prefer the ligature with excision operation. With this procedure a proper hemostasis and proper removal of pathological tissue is best accomplished. A most important, yet most neglected, part of hemorrhoidal surgery is the post-operative care.

Surgical cleanliness should be maintained by frequent dressings and irrigations, and by these

same means post-operative infection and edema will be eliminated. Severe pain rarely follows a correctly performed hemorrhoidectomy and, when present, may be greatly minimized by the use of surgical cleanliness, local heat, and anesthetic ointments.

The injection treatment encroaches upon the field of hemorrhoidal surgery, for the average patient will not accept operation and hospitalization when they can be safely avoided. On the other hand, a modern hemorrhoidectomy under local anesthesia, with careful post-operative attention, can no longer be classed with the painful experiences of a few years ago.

Professional Building.

DIAGNOSTIC AND PROGNOSTIC CRITERIA IN PULMONARY TUBERCULOSIS.

By W. D. TEWKSBRURY, M. D., Washington, D. C.

This subject has been so frequently and thoroughly discussed before medical bodies during the past twenty or thirty years that I approached the task of presenting a short paper on the subject this evening with some hesitancy and reluctance. I have made an effort, however, to confine my remarks to a few practical and useful points concerning diagnosis and prognosis, and to bring out, as much as may be possible, impressions based on personal experience.

Accurate diagnosis of pulmonary disease requires two things: first, some experience and skill on the part of the examiner, and, second, all facilities, such as X-ray apparatus, laboratory, etc., for making the necessary examinations and tests. In the latter respect the general man is, of course, handicapped, and it is perfectly natural that a certain percentage of cases of clinical tuberculosis will escape diagnosis for a time. When we say diagnosis, what do we mean? I think the classification used at Trudeau Sanatorium, Saranac Lake, is the most sensible. They classify their cases as non-tuberculous, suspected tuberculosis, and tuberculosis—non-clinical or clinical.

SUSPECTED TUBERCULOSIS

No rales are noted in upper chest; no X-ray findings except peri-truncal lesions; no tubercle bacilli present. Patient may or may not react to tuberculin tests. There is a history of either a previous lung hemoptysis or a previous

pleurisy with effusions, but not both. This last is most important. Any case with a history of either pulmonary hemorrhage or pleurisy with effusions should be considered as suspected tuberculosis.

PULMONARY TUBERCULOSIS—NON-CLINICAL

No rales in upper half of chest.

Presence of parenchymatous X-ray lesions not explainable by other causes.

Tubercle bacilli negative.

Patient may or may not react to tuberculin tests.

Symptoms must be absent.

PULMONARY TUBERCULOSIS—CLINICAL

Any one or more of the following:

Persistent rales in upper chest not explainable by other causes.

Parenchymatous X-ray lesions.

Tubercle bacilli in sputum.

Focal reaction in lung showing in X-ray after subcutaneous tuberculin injection.

A history of an unexplained hemoptysis of more than a teaspoonful of blood together with history of pleurisy with effusion.

There is a certain type of clinical tuberculosis where the patient has old fibrosis in the lungs which may be quite dense and extensive and yet show very few signs on physical examination by the most skilful examiner. The dullness on percussion is masked by compensatory emphysema, and there is absence of rales and of definite breath sound changes. However, the moment this case is looked at with fluoroscope or X-ray films are taken, the lung lesions stand out most distinctly. I frankly admit that I am at times surprised and astonished at the amount of involvement the X-ray shows as compared to the few physical signs I find in certain cases of this type. Needless to say, they are frequently overlooked by examiners who have not all methods for examination available. I have numbers of these cases on my records and will cite one which is typical. This patient came to me in June, 1920. He was thirty-four years of age, five feet eight inches in height, weighed 150 pounds, and was exceptionally healthy in appearance. He had history of digestive disturbance for past ten years and slight bronchial cough. He had plenty of money and lived a rather active life both in business and a social way. He was not the type in which one would consider tuberculosis a probability. He had been ex-

amined in the past year by two excellent diagnosticians who had apparently not found anything suspicious from the lung standpoint, as they had not suggested X-ray films. This patient came to me because he had coughed up blood the previous day. X-ray films showed a rather extensive fibroid tuberculosis involving half the left lung, which must have been present for several years. I do not criticize the previous examiners nor take credit to myself for this diagnosis as I do not believe I would have diagnosed it on general examination without the history of hemorrhage and the aid of X-ray films. It simply shows the value of a complete examination and especially of X-ray examination.

There is another type of case which offers difficulties. That is the patient who has had previous active tuberculosis in a moderate stage, which has gradually absorbed, leaving only crackling rales after cough in the upper lungs. X-ray films of this type often show nothing which is interpreted as active tuberculosis, but physical examination shows the signs mentioned. An example of this type is a patient I had seen at intervals over a period of five years. She had on first examination a positive sputum, definite X-ray findings in upper lobe of left lung, and had had several pulmonary hemorrhages the first year I treated her. Five years later she had X-ray films taken of the gastro-intestinal tract and a routine X-ray film of chest. The report on chest showed no evidence of pulmonary disease, yet physical examination still showed rales over the lesion after a cough. This shows the diagnostic value of the physical examination in certain cases even though X-ray films show nothing definite.

We see another type of case which is very puzzling from the diagnostic standpoint, namely, the chronic pleural cases with effusion. These patients are easily diagnosed as pleurisy with effusion, but we cannot tell what is in the lung tissue until the fluid has been aspirated or absorbed. Then we often find a consolidation remaining in the lung which persists for a long period of time, in some instances for years. It usually produces no cough or temperature, but results in some dyspnoea and rapid pulse rate on exertion. These patients are partially but not entirely incapacitated. I feel they should be considered as tuberculous unless proven otherwise.

An example of this type of case is the fol-

lowing: Man, aged thirty-three, discharged from the army in 1919, and came to me for examination in 1923. He had developed pleurisy with effusion a few weeks after discharge from the army, which left a consolidation in center of left lung. This consolidation still is present after eight years. He is short of breath on exertion, somewhat under-weight and develops rapid pulse readily, but has no cough or fever. He has been drawing compensation from the Veterans Bureau as a case of tuberculosis for total disability during past seven years. He has appeared twice before an army retiring board and both times has been refused retirement on the grounds that he has not tuberculosis, based on testimony by army medical corps officers. This shows how difficult a definite diagnosis may be in these pleural cases. One group of government physicians diagnose him as definitely tuberculous whereas another group diagnose him as definitely non-tuberculous. Large subcutaneous injections of tuberculin followed by X-ray films to study the focal changes in the lung will aid in making a diagnosis in this type of case, but the reaction is often severe and may light up true activity in lung tissue. Personally, I would not want injections of tuberculin sufficient to produce focal reaction in lungs given to me; therefore, I do not use this method on my patients for diagnosis. I believe we can get a sufficiently accurate diagnosis to administer intelligent treatment without this method.

Prognosis in pulmonary tuberculosis is very important if the patient is the wage earner. It often involves the entire economic future of the family. It is necessary to know: First, will he recover? Second, if so, what length of time will probably elapse before he can again do income-producing work? Third, will he be able to return to the same position he was holding when tuberculosis developed? In answering the first question, will he recover, a number of factors must be considered. The extent of the pulmonary involvement and, more important still, the character of the lesions should first be studied. A moderate infiltration throughout half of one lung is often curable if the lesions are fibroid in character, whereas, the same amount of trouble may indicate an incurable case if the lesions are of the soft, ulcerative, progressive type. The habits of the patient must be considered. If his habits have been bad, his prognosis would be better than if he had had good habits. This sounds para-

doxical, but it means simply, if a man is living, sleeping and eating temperately and properly and in spite of that fact develops tuberculosis, he must have very poor natural resistance to the disease, whereas, with one who has had bad habits we often make a substantial start towards a cure simply by correcting them. The temperament of the individual plays a part. I find that patients of the neurotic, high strung type do not improve so readily as do patients of a more phlegmatic disposition. Cases with all the active involvement in one lung are apt to do better than when there is less extensive involvement in both lungs. This is especially true because many of these patients can take pneumothorax treatment and the ultimate outcome in advanced cases is much more favorable if they are able to take artificial pneumothorax. As an example, the following case is one of a number. Married woman of twenty-five years came to me first in 1913. She had advanced pulmonary tuberculosis involving most of left lung, and of the soft ulcerative type. Dr. Minor, of Asheville, had started pneumothorax treatment a few months before I saw her. She continued to run high temperature and Dr. Minor sent her home with a very poor prognosis, but advised that the pneumothorax be continued. I gave her treatments at monthly intervals for two years. She made a complete recovery, has had two children since 1915, and is still in perfect health fourteen years after taking the treatment. A second case was started in 1915 on account of increasingly frequent hemorrhages over a period of several years. She had a soft infiltration throughout one entire lung and made complete recovery on use of pneumothorax over a period of two and one-half years. She is still well twelve years after her treatment, and X-ray films taken a few weeks ago show only a few calcified nodules in one apex.

The presence of complications in other organs, especially the larynx and intestinal tract, practically always means a very poor prognosis, although with the use of heliotherapy some of these cases are eventually cured.

Hemorrhage cases do better than do those who have never had a hemoptysis, there being about twice as many cures among that type of patient. I recall a patient whom I saw first in 1912. He had several hemorrhages at gradually decreasing intervals over a period of three years. His lung lesion was a dense tuberculosis confined to the upper portion of

right lung, the left lung being normal. Since 1915, he has had no hemorrhage or temperature, his weight has increased from 150 pounds to 210 pounds, although he still has some dyspnoea and cough. He has held a responsible executive position without losing any time from sickness for the past twelve years, so that, practically speaking, he is a well man. I have seen many cases such as the one cited.

Patients with a moderately large heart, extending well towards the left, and with a blood pressure up to normal or above normal do better than those with the long narrow so-called "drop heart" with blood pressure below normal. The most important prognostic aid we have, however, is the clinical picture. The weight chart, amount of cough and expectoration, amount of temperature rise, and the increase in pulse rate are after all the most valuable guides we have as to the virulence of the tuberculous infection and the resistance of the patient. Cases in which the temperature and pulse will not return to normal after one month's rest in bed should be considered as having a doubtful prognosis.

Cases who, after several months' rest in bed still run temperature and rapid pulse with no improvement in their cough are very unlikely to ever return to normal active life. There are exceptions but in my experience they are very rare.

SUMMARY

A *favorable* prognosis can safely be given in the following cases: Patients having slight or moderate involvement tending towards fibrosis; those having good sized heart with normal blood pressure, who are increasing in weight, and who get rid of temperature and rapid pulse with a cessation or marked decrease in their cough in less than a month in bed. This type should be considered favorable for complete cure. They will probably be able to return to work within a year. They can safely return to the same work, provided it does not entail marked physical exertion. If so, they should seek a more sedentary occupation.

A *doubtful* prognosis should be given in the following: Patients who are stationary or losing weight; those having a moderate involvement which is of the soft ulcerative type with numerous rales in chest, and who do not get rid of fever and rapid pulse and cough after a month in bed. Patients who become afebrile and stop coughing but have low blood pressure

and long narrow "drop heart", with rapid pulse on exertion, should also be considered doubtful as to cure.

A *poor* prognosis should be given in the following: All cases having tubercular complications, no matter what the lung involvement may be; cases having definite moderate lung lesions who are not free of fever, cough and expectoration after several months' rest in bed; all patients having advanced lung lesions who are losing weight and continuing to cough even though the temperature is normal.

Medical Science Building.

MENTAL READJUSTMENTS.*

By P. G. HAMLIN, M. D., Williamsburg, Va.

The problem of psychotherapy is probably most often one of readjustment. Most young men and most young women in this great Democracy start perhaps with the idea that the world is their oyster, to be opened at pleasure. If one is not stranded on the rock of puberty, and if the protoplasm handed on to him by his ancestors is good, the world will prove not to be his oyster, but a battlefield where eternal vigilance and hard work will be, at least in part, rewarded. If, however, the nervous system he inherits is not so sound as to stand the wear and tear of every day usage, he and his physician, the psychiatrist, come up against the problem of readjustment. We cannot make over the individual's nervous system; therefore we must make over his environment, for mental health consists simply in one's adjustment to his environment, and mental ill health his maladjustment to this environment. If this maladjustment is pronounced, he has a psychosis; if it is less pronounced, he has an eccentricity, a nervous breakdown, a temperament, mood, or something similar.

It is merely a philosophical and not a practical procedure for the psychiatrist to say this patient has dementia precox, or manic depressive psychosis, and that his conduct will be thus and so, and that the prognosis for immediate and ultimate recovery is such and such. This does not help either patient or psychiatrist. Diagnosis which does not offer some hope of treatment is worth nothing to the patient. Must psychiatry, alone of the branches of medicine, say that it is not to alleviate suffering, but merely to tag a label to the sick?

What difference does it make to some poor soul who, in competition with his cleverer fellows, has developed delusions of persecution, that the psychiatrist peering over his glasses wisely says, "Manic depressive psychosis?" None.

If the moving finger writes indelibly then the man who deals in mental medicine must be able to read between the lines. He must borrow leaves from the books of the novelist, the priest, the physician, the biologist, and the psychologist. He must believe that the manifestations of the thing we call mind are worthy of study, even in the humblest individual. Did a belief in what one might call "the hereditary laws of gravity" enable the Wright brothers to conceive the aeroplane? No. The power of mind which visualized a new use of the gasoline engine did that. DaCosta, in his article on old Blockley¹ described the case of a paranoiac committed to that institution who invented and perfected a method of preparing and sterilizing catgut. This method was used in the Jefferson Hospital in Philadelphia for many years and was still in use when DaCosta's paper was published. The function of a psychiatrist is not to label a psychosis, but to assay the power of the mind which has it. To this task he must bring all of the resources at his command, imperfect as they are.

The psychiatrist in regarding his patient first should wish to determine whether the condition presenting is fundamentally inherent or acquired. Often there is a combination of these two factors. Is this man's mental status dependent upon toxic-infectious processes, or is it due to faulty mental mechanisms, either inherited, or else springing from the unconscious, that hypothetical region inhabited by phantom shapes that come and go?

The toxic-infectious group presents a problem comparatively easy of solution. The diagnosis, prognosis and indications for treatment are here fairly clear cut. But in the other and larger group, dementia precox, the manic depressive group, paranoia, paranoid conditions, and borderland states treatment is essentially a matter of readjustment.

Janet² has put it clearly and cleverly, "One must live within his mental income. No two individuals have the same amount of mental capital. When the mental reserve or surplus is called upon to excess, then is disaster near, and the psychiatrist must take stock of his patient's assets, his liabilities, his overhead. Expenses must be cut; mental economy

*Read at the annual meeting of the Walter Reed Medical Society at Yorktown, Va., May 26-27, 1927.

must be the watchword in his household."

A biographer has said of Lord Kitchener that he was never "a race horse among cows." Woodrow Wilson could not make the base ball team at school, and there is some evidence to support the belief that he felt his bespectacled inferiority greatly. However, the school was probably deprived of a poor base ball player, and the country gained a great statesman. Our system of government and our social system encourage the idea that the tailor who learns to read and write after he is twenty-one may become President; that the son of the shoemaker may go to West Point and become the General of the Army; that the road leads direct from the log cabin to the White House. These are in individual instances excellent ideals and undoubtedly make for progress. However, as a doctrine to be taught, as a code to be preached, they are questionable.

A man of thirty-two, who was admitted to the hospital, held a marine engineer's certificate. He held a commission in the U. S. Navy as an ensign during the period of emergency, serving for three and a half years. Since his discharge from the U. S. Navy he has been unable to hold a job operating a street car longer than two weeks. However, with a little financial help, he can make a living on the outside crabbing and fishing. Are we to say, because he cannot build a better mouse trap than his neighbor, he shall not have his place in the sun? If he is a hewer of wood and a drawer of water, is he not necessary for the rest of us to carry on? A psychosis appearing under stress is often cured or alleviated when that stress is wisely removed.

Obviously the best time to assay the individual's mental capital is in the early years. It is then by wise investment that the best returns may be looked for. A psychopathic tendency corrected in childhood yields rich rewards in adult life. Is not mental hygiene as important in the schools as oral hygiene—fly swatting, or malaria control, typhoid inoculation, or diphtheria toxin antitoxin? All these procedures are of unquestioned value. Infections give warning of their intention to destroy. Fever, leukocytosis, malaise—these are like red signal flags to the patient and his friends. However, faulty mental functioning is more insidious and less likely to be heeded. Yet if not corrected it will probably spell ruin. The question, "Canst thou minister to a mind diseased?" is answered in the affirmative only

when the ministering is done early and the individual's environment can be completely controlled.

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MANAGEMENT OF THE THIRD STAGE OF LABOR.*

By M. T. VADEN, M. D., Buena Vista, Va.

The third stage of labor, strictly speaking, lasts from the delivery of the child until the placenta and its membranes have been delivered. In my discussion of it, I shall include everything that has to be done until the doctor is ready to leave the house.

The care of the infant comes first. As soon as the baby is on the bed, or even as its head emerges from the vulva, have a piece of sterile gauze ready and cleanse its mouth and nose of all mucus. Grasp the child by its feet and lift it straight up with its forehead just touching the bed. This will cleanse the air passages of any fluid which may have been aspirated during birth.

Now lay the child on its right side with its head lower than its body, its hips elevated, and supported by a folded towel.

If respiration has begun and is progressing, there is no need to resort to artificial means, and the child may be covered with a warm blanket until time to sever the cord.

If there is any difficulty or delay in beginning respiration, slap the child on the back or buttocks. If breathing does not commence, artificial respiration should be practiced at once. I prefer and use the mouth to mouth method, which is as follows: Lay a piece of sterile gauze over the infant's mouth, place your mouth over this and blow air into its lungs, blowing in just what you can hold in your mouth at one time. The rate should be about twenty times to the minute. Press the child's chest after each inflation to expel the air. Continue these maneuvers until the child's skin becomes pink and it breathes of its own volition. It is a very good practice, especially if the room is cool, to place the child in a warm bath while carrying out this treatment. Should the heart action be feeble, a hypodermic of adre-

*Read before the Rockbridge County Medical Society, April, 1927.

nalin, one to one thousand, 3 m., should be given intramuscularly.

The child being in good condition, it is now time to sever the cord. Strip the Wharton's jelly in the cord away from the child. Clamp the cord, about two inches from the belly, with a pair of artery forceps. I always tie the cord in two places,—first, close to the skin at the margin of the navel, and, again, about half an inch distant, leaving the stump only about one inch long. This will favor its early separation if kept dry. Always dress the cord by wrapping it with sterile gauze before the baby is washed, changing to a fresh sterile dressing after the bath.

Grease the baby with olive oil and have it given a bath with a cloth or sponge. Never put the baby in the bath for fear of infecting the cord. The nurse should be instructed to bathe it in this way and to keep the cord dry until it separates.

As soon as the cord has been severed, place a clean towel under the buttocks of the patient. Clamp the cord at the vulva with a pair of artery forceps. Put a clean basin containing the cord snugly up against the woman's buttocks. The artery forceps will show any advance of the cord, one of the indications of the separation of the placenta. The basin will serve to catch the blood as a check on the amount lost.

Palpate the uterus through the abdominal wall to see that it remains firmly contracted. Now sit by the bed, holding the hand over the uterus. If it remains firm and there is no external bleeding, all is good and well.

It is best not to hurry the separation of the placenta, but wait for the signs that it has separated,—indicated by contraction of the uterus, which rises higher in the belly; the lower segment of the uterus becomes distended, and there is several inches, advance of the cord into the basin.

Always endeavor to save the patient's blood, for hemorrhage predisposes to infection, delays and inhibits lactation, produces anemia, and delays the recovery of your patient.

It might be well here to enumerate some of the signs of hemorrhage, indicated by faintness, dizziness, air hunger, nausea, yawning, thirst, low blood pressure.

Should the uterus become soft and distended with blood, massage should be practiced, executing a kneading movement with the hand. Should hemorrhage continue after the uterus

becomes hard, inspect the vulva for injury or tear, as the source of the bleeding. In case of persistent bleeding, it becomes necessary to deliver the placenta immediately. Massage the uterus vigorously and, with the first contraction, do the Crede expression, grasping the uterus firmly, the fingers behind, and the thumb in front; shove in the axis of the pelvic inlet, at the same time squeezing firmly to expel the placenta. As soon as the placenta is in the vagina, have the patient bear down to expel it. Failing in this, use the uterus to shove it out, at the same time straightening out the cord, but do not make undue traction upon it; simply use it as a guide in making the delivery. When the placenta and membranes appear, they should be grasped in the hand and gently removed. Massage the uterus again, and give a drachm of ergot by mouth and one c.c. of pituitrin hypodermically.

It sometimes becomes necessary in case of hemorrhage to do a manual expression. This requires a great deal of care, as it is considered one of the most dangerous of obstetrical procedures.

Draw the patient across the bed, support one leg with a chair, and have someone hold and support the other leg. Prepare your solutions of 1:1000 bichloride and 1 per cent lysol. Have all instruments and gauze sterile and at hand. Bathe the vulva with bichloride solution, washing out the vagina with lysol. Always use rubber gloves, even though they interfere somewhat in using the finger nails to separate the placenta. If the hemorrhage has not been too severe, give an anesthetic. If there is much shock, operate without one. Pass the gloved hand into the uterus. Gently insinuate the fingers beneath the placenta, with the other hand on the belly and grasping the fundus, separate the placenta in its entirety. As soon as separation is complete, grasp the placenta firmly in the hand and massage and shove down on the fundus, allowing the uterine pains to expel the hand and placenta. This method will prevent tearing the placenta into fragments, with the danger of leaving portions of it. Having delivered the after-birth, catch the cervix with a pair of cervical forceps, drawing it down and inspecting it for a cervical tear, if it has not already been detected by the hand in the uterus. If there is no hemorrhage from such a tear and the bleeding is continuing, it is best to pack the uterus at once.

In packing the uterus I put my left hand

into the vagina, using the index and middle fingers as a guide. With a pair of packing forceps, carry the gauze well up into the fundus, keeping a watch out for the contracting ring, so as not to stop here with the packing. Have someone hold the fundus firmly while packing.

As soon as the uterine cavity is pretty well filled, grasp the fundus with the right hand and shove down, at the same time pressing upward with the left, thus firmly packing the interior of the uterus. Now pack the vagina tightly and put on a bandage to retain the packing. The packing should be removed carefully after 24 hours.

If your patient is shocked, hypodermoclysis should now be started.

In my practice it has only been necessary to pack on two occasions. The bleeding in both cases was controlled satisfactorily. I recall two other cases of severe post-partum hemorrhage, which were found to be due to deep cervical tears. Repair of the tears controlled the bleeding.

Before discarding the placenta, inspect it carefully. Go over each cotyledon, wiping away the blood and examining them minutely. Then feel and inspect the edges to see that no portion has been torn off. Now examine it carefully in the center, all rough spots should be washed and inspected most carefully. Look out for a placenta succenturiate. Examine for absence of membranes from the sides; if such place be found, determine if a blood vessel has been broken off at this point.

A smaller placenta than usual for the size of the child delivered should arouse suspicion of a second placenta.

A small piece of membrane may be left to Nature to take care of, but always instruct the nurse that it has been left, so as to avoid criticism when it is passed.

It is imperative to remove all of the placenta before leaving your patient. Retention of a small piece may cause hemorrhage; it will certainly cause severe after-pains, and a foul smelling lochia is likely to result. Sub-involution of the uterus may be a sequela.

The child should be carefully inspected for any deformities or birth injuries. It is rather embarrassing to have your attention called to injuries or defects, upon your return visit, that you had not noticed on the day of delivery.

Cleanse the eyes carefully and put two drops

of one per cent silver nitrate in each eye. It is best to wait until after the placenta has been delivered to do this, as you are now not so rushed and can give the eyes the attention they deserve.

Your time may now be well spent in cleansing your instruments, drying and powdering your gloves, weighing the infant, etc.

Palpate the uterus again to see that it remains firm. Inspect the vulval pad to see there is no hemorrhage.

If an hour has elapsed since delivery, it is safe to leave, but before taking your departure, make sure that the mother is in good condition, that there is no headache or vomiting, that the pulse is good, and that the baby's cord is not bleeding.

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DIFFICULTIES IN ADMINISTERING THE PROPER DOSES OF INSULIN IN A CASE OF DIABETES, COMPLICATED BY PUS INFECTION, AND OTHER NOTE-WORTHY OBSERVATIONS, AS ILLUSTRATED IN A PARTICULAR CASE.*

By F. M. PERROW, M. D., Lynchburg, Va.

Recently, at a meeting of the staff of the new Virginia Baptist Hospital, of which I am fortunate in being a member, I was given the task to review the records of the cases of diabetes that have been treated in this hospital to date, and report any interesting data I might find in these cases at the next monthly meeting of the staff.

The Secretary handed over to me the records of fifteen cases, some of which were very voluminous. They were about equally divided between cases of diabetes with surgical complications and diabetes without surgical complications.

The group contained—

1. Cases with simple low tolerance, requiring simple dieting.
2. Simple low tolerance cases with obesity, requiring special dieting.
3. Simple cases, adults, which required dieting and insulin—cases below C 50, P 50, F 125 tolerance, i. e., and showed sugar in urine on this diet.
4. Cases complicated by Bright's disease, and exhibiting a high renal threshold.

*Read before the South Piedmont Medical Society, April 19, 1927.

5. Cases complicated by infection and other surgical complications.

6. Cases combining 4 and 5, that is, Bright's disease, infection and other surgical complications.

For my paper before this Society I shall report fully only on one of these cases which, to me, was the most interesting and valuable. This case definitely exhibited the difficulties of determining and keeping balanced the proper dose of insulin. I believe, also, this case demonstrates that the blood sugar in diabetes fluctuates with pus infection,—infection partially relieved, blood sugar falls; infection completely removed—striking drop in blood sugar. Thus, with your patient on same diet, blood sugar rising denotes spreading infection, although he looks the same.

This case also illustrates the *huge* doses of insulin that a moderately severe case of diabetes may require when complicated by pus infection, as demonstrated by the very small doses required when the infection was completely removed. This case also illustrates that, following operation requiring general anesthetic, glucose should be given intravenously immediately, matched against relatively large doses of insulin given subcutaneously, and that this should be repeated several times, because patient may vomit all food by mouth and insulin may cause a reaction.

This case also illustrates the quandary in which one may find himself to say whether it be a case of uremic, diabetic, or insulin coma.

This case likewise illustrates mistakes which one may partially avoid—mistakes which I feel I have a right to report in that I made them myself, but which have been very instructive.

I might further remark that insulin seems to have had no influence on the temperature curve in this case except in severe insulin reaction, or may be to have held the infection in abeyance; that the temperature curve corresponded with physical signs of increasing or decreasing infection. The temperature was highest during first week—regular pus temperature,—and was reduced somewhat by simply lancing points of evident pus, irrigating, etc. From this time to first operation, a period of $2\frac{1}{2}$ weeks, there was very slight variation from day to day—evening around 101° , morning 99° . Succeeding first operation, temperature was much lower, average run

being evening about $99\frac{1}{2}^{\circ}$, morning subnormal, until a few days before amputation, February 24th, when it began to rise a bit. After amputation, the usual traumatic post-operative temperature was present for a few days and then became normal.

This was a case of diabetes referred to me by Dr. F. O. Plunkett, in an old man 67, complicated by chronic Bright's disease, as evidenced by urinary findings and marked arteriosclerosis and symptoms of myocarditis. He was brought to Lynchburg after having been taken suddenly sick with delirium and unconsciousness coincident with symptoms of infection of his foot. I first saw him at the Baptist Hospital December 27th, after he had had two or three days of treatment, and then his mind was quite clear,—just a little off at times. His foot was not swollen, but had a small ulcer, or rather hole about the size of the end of a lead pencil, at the base of the second toe, plantar surface, from which could be expressed a few drops of thick pus with a black stringy substance like gangrenous tissue. At first, and for eighteen hours, he was put on a diet of broth only, the urine the following morning showing sugar ++++ and a trace of acetone. No blood sugar test was made just then as, of course, it would be high and give no additional information necessary for treatment at the time. The following twenty hours' mental status being very good, foot treated, he had, besides broths, four Uneda crackers and twenty units of insulin. On this the urine showed 1.2 per cent sugar in 46 ounces—equivalent to 16.5 gms. of sugar,—whereas, the crackers contained only 20 gms. of carbohydrate. Therefore, I knew while I was giving a unit of insulin per gram of carbohydrate it was not enough; mind clear and foot about the same. In the next twenty-four hours, he had six crackers, two eggs, half ounce butter, and broths equivalent to 30 grams carbohydrate, etc., but 50 units of insulin. On this the urine contained no sugar, but still a trace of acetone, and blood sugar was this day only 68 mg. per 100 c.c. of blood. (Here I wish to remark that the trace of acetone continued throughout this man's illness and was still present when he was discharged from hospital, and every diabetic symptom had disappeared. I do not know how to explain this. Also, after this date sugar was not again found in his urine while he was in the hospital). Thus, on a diet of 30 grams of carbohydrate,

etc., and 50 units of insulin, I knew he was getting too much insulin. I reduced the insulin to one unit per gram exactly and blood sugar test 48 hours later was normal, 100 mg. to 100 c.c. Diet was, however, far below basal requirements, only 30 carbohydrate, etc., so I raised it to C 60, P 44, F 150, equalling 1,766 calories. All of this was taking place the first week, foot being lanced twice and free pus evacuated, pus having collected on the dorsum of the foot near the base of fourth toe. However, the foot exhibited practically no swelling.

My experience with insulin to this date was that it was very powerful and usually 1 unit insulin to 2 grams carbohydrate in the usual diabetic ketogenic anti-ketogenic formula, was enough, and, though I did not get a normal blood sugar until I raised it to 1 for 1, I was fearful about giving 60 units to handle C 60, P 44, F 150, so I gave 45 units. Note the result on the blood sugar: On January 5th it was 200 mgm., diet the same. Insulin was raised to 60 units, i. e., 1 for 1, and five days later foot still pusy but no evident extension of inflammation; blood sugar was 147.8 gms. to 100 c.c. This was January 10th. What was the explanation of this? There was retained pus, though no special signs, and more of it, I now know. Ten days before it had been demonstrated that the trouble was so severe that it took 1 unit per grm.,—twice the usual quantity;—now it would require even more. I knew I was giving dangerously large doses for his diet, and, knowing frequently with improvement of infection this dose would probably be enough. I did not increase it for a week, doing only careful daily cleansing, dressing, and keeping wounds wide open, but no improvement was seen. So I raised the insulin to the very large dose of 68 units a day for a diet of C 60, P 44, F 150. No insulin reaction took place. At this point—January 17th—slight increase of temperature curve was noted; pain in foot at night required small doses of morphine; foot showed outward signs of beginning to get worse, wound had more pus, and there was some boggiess on dorsum, etc. Thus, on January 21st he had his first real operation—under gas anesthesia.

Incision was made on plantar surface of foot, beginning at the base of second toe, carried outward about an inch, and then backward to middle of foot over area corresponding to greatest tenderness. Incision was deep

—to the deep tendons—and free dissection was made with finger of all the soft tissues from deep tendons; some pus was present here. Also an incision was made on dorsum at base of the fourth toe, and finger carried through wound to plantar incision. Wound was packed with iodoform gauze.

This day—the day of operation—I believe a mistake was made. Patient had his morning meal and usual dose of insulin, which was correct. He had no midday meal or insulin—operation being done at 5 P. M.; morphine followed operation and also insulin 24 units. Between 8:30 P. M. and 12 that night, the nurse has on the chart: “8:30—Patient had a chill, did not perspire after the chill. 9 P. M.—T. 100.3. Patient fell out of bed; seemed unconscious at the time but was perfectly rational after getting back in bed. Patient says he fell while he was asleep. Perspired freely.” Balance of night “not a good night.” I am sorry I did not know this at the time. To me, he needed glucose intravenously, and I am sure from a later experience this would have been right—at least 20 gms. in 5 per cent solution.

The following day, January 22nd, his regular diet, C 60, P 44, F 150, and regular dose of insulin were reinstated, and for the succeeding days, barring pain at times in foot, he seemed better. Blood sugar test on January 26th showed that the insulin now was more effectual, 133.3, whereas, on same diet and insulin it had been before operation 147.8.

Now notice a change. On February 1st—ten days after operation of free incision—same diet and same insulin caused symptoms of insulin reaction, controlled by orange juice. Insulin reduced to 60 units, with diet on February 2nd remaining the same. On February 3rd blood sugar test 100 mgm.—normal again at last. Foot was looking good—incision wide open—diet still the same and insulin 60. Next succeeding two or three days patient had mild symptoms of too much insulin and dose was reduced to 50 units a day—same diet. From February 6th to 20th patient was kept on 50 units, same diet, foot dressed daily, no symptoms referable to insulin, but on 20th there was slight reaction, controlled by orange juice. Several times here insulin reaction occurred, and insulin was reduced to 40 units a day, giving the same diet. This treatment was continued without reactions until amputation on February 24th.

Amputation was considered advisable because of continuous slight evening temperature which had become slightly more elevated, though wound was healthy looking—all but the dorsum of foot,—and *pain in foot*. Blood sugar this day 95 on diet—C 60, P 44, F 150—and 40 units insulin. This was just right. On this day I tried to prevent untoward symptoms from operation by giving him a goodly quantity of carbohydrate before operation, by matching his regular breakfast against 15 units insulin, and at 12 o'clock noon twelve ounces of milk against 12 units insulin. I was counting on this to displace necessity of glucose following operation.

Operation was done by Dr. J. W. Devine. Amputation high above the knee. Flap method and flaps neatly approximated. Operation consumed about 40 minutes. After the amputation, the foot was dissected. Most surprising extent of pus invasion was found. It had gone beyond the deep tendons of the plantar surface and was in liquid quantity between the bones of the tarsus.

Quite severe shock followed operation, for which morphine adrenalin and atrophine were used, together with hypodermoclysis. Good result from stimulant by midnight.

On February 25th—day following operation,—28 oz. milk and the juice from 2 oranges were given, equal to a diet of over 60 gm. carbohydrate distributed along with 70 units insulin. He vomited most all of this food and delirium developed in afternoon; 20 gm. glucose was given that night, but he was restless and perspiring most of night, although his mind was clear morning of 26th. Morning of 26th, blood sugar 95. In succeeding 24 hours patient had diet of oatmeal and milk equal to C 50, P 25, F 22, and insulin 45 units, but vomited most of milk, and that night was flighty and vomited large quantity fluid.

On February 27th he was still at times momentarily flighty; very little sleep; nauseated. During day patient was given insulin matched against oatmeal and cream, 1 unit per gm. of carbohydrate, but he refused to take but small portions or none at all. Now, clearly, too much insulin again, and I gave him 30 gm. glucose in 5 per cent solution about 7 P. M. During night symptoms were much better but still he continued sweaty, restless and a trifle flighty and drowsy.

On February 28th insulin was markedly reduced; took all of his oatmeal and cream for

breakfast, and at 10 A. M. he looked like he was well. During this day he had 52 units insulin against 73 carbohydrate, and that night was feeling well and had a good night.

On March 1st—fifth day following operation—was noted the most interesting and clearly demonstrated power of insulin when pus infection was removed.

7:30 A. M. Insulin 20 units.

8:00 A. M. 1 oz. oatmeal, 1 orange, 2 oz. cream and $\frac{1}{2}$ oz. butter—equal to C 32; P 13, F 22.5.

12:00 Noon Perspiring some and dizzy.

12:30 P. M. Insulin 20 units.

1:00 P. M. 1 shreaded wheat biscuit, 2 oz. cream, 1 egg—equal to C 25, P 11, F 30.

2:45 P. M. Feeling queer, flighty, perspiring.

4:00 P. M. When I arrived, coma and heavy sweat. Here he had gotten 40 insulin and 57 of carbohydrate (certainly moderate as compared with his former tolerance). To make sure just what this coma was, I ordered blood sugar test.

4:30 P. M. Blood test 45 mgm.; clearly in-insulin coma.

5:30 P. M. 20 gm. glucose in 5 per cent solution.

6:00 P. M. Patient talking, expression bright.

Saltine crackers during night. Had very good night.

March 2nd—Apparently well. Put on diet C 68, P 59.5, F 132 and insulin 34, i. e., 2 for 1.

March 3rd—Blood sugar 111.1.

March 4th—In afternoon, symptoms of too much insulin; insulin reduced to 20 units daily and diet raised to C 73, P 60, F 132.5.

March 8th—In chair—feeling fine.

March 9th—Blood sugar 100; calories 1744.5, on a diet of C 73, P 60, F 132.5, and insulin 10 units twice a day.

Discharged—Primary union.

SUMMARY

1. Besides the known difficulty of estimating severity of diabetes by outward appearances, it is even more difficult to estimate extent of pus infection in a diabetic foot by appearances.

2. Diabetic treatment seems to have no in-

fluence on general temperature curve in a case of pus infection in a diabetic. Temperature curve in this case corresponded to retained pus.

3. A case of diabetes complicated by pus infection may require triple or quadruple doses of insulin as compared with dosage 10 days after infection is removed.

4. In a diabetic with pus infection kept constantly on same diet—no sugar in urine,—blood sugar fluctuates with degree of infection; infection partially removed, blood sugar falls some; infection completely removed, striking drop in blood sugar. Thus your insulin dose has to vary.

5. It is best to give glucose intravenously, insulin subcutaneously—unit per gram—immediately following operation in severe diabetes; where a general anesthetic is used, probably repeat several times. Patient may vomit food swallowed and you will get an insulin reaction.

HYDATIDIFORM MOLE.*

By S. PALMER HILEMAN, A. B., M. D., Millboro, Va.

Hydatidiform or vesicular mole is admitted to be a disease of the chorion in which the terminal ends of the villi form transparent grape-like vesicles held together by little pedicles. These vesicles range from the size of a millet seed to that of a large grape. The process usually comes on before the fourth month of pregnancy, and the foetus, having its nutrition impaired, is destroyed, so that when the mole is expelled, frequently one finds no foetal remains. Williams states that spontaneous expulsion is rarely delayed after the sixth month.

There is great difference of opinion as to the frequency of vesicular moles. Gebhardt observed twelve cases in 16,000 pregnancies; Hirst states one case in 3,000 to 4,000 pregnancies; Williamson one in 2,400 pregnancies, and Madame Boivin one in 20,000. Gordon states that out of 4,500 abortions, twenty-one vesicular moles were discovered, and he feels sure that many early cases in this series were overlooked, for often careful examination is necessary to determine the presence of a few vesicles. He suggests that the aborted products, after careful washing, be placed under water, and this causes the distended vesicles to rise to the surface. The condition may develop in young women, but is most frequent

in multiparous women in the late child bearing period.

The diagnosis can only be positively made when the cysts are expelled or are palpated through the dilated cervix. There are three signs, however, which are said to be very suggestive:

1. A greater enlargement of the uterus than absent menstrual periods would lead us to expect. (In exceptional cases the uterus may be smaller).

2. Irregular hemorrhage, and a brownish, watery, vaginal discharge. Sometimes hemorrhage is profuse.

3. A doughy, indefinitely outlined uterus, with absent fetal heart sounds.

In addition, there may be nausea, anorexia, extreme exhaustion, and sometimes renal insufficiency. Very early the only sign is said to be the brownish vaginal discharge.

It is of interest that by far the greater number of vesicular moles are associated with cystic changes in the ovaries, the cysts being identical with those of the corpus luteum.

The mortality is variously estimated from 10 to 25 per cent. DeLee gives 16 per cent; Hirst 18 to 25. The cause of death is hemorrhage, low grade sepsis superimposed on an anemic state, and the development of chorio-epithelioma. It is significant that half of all chorio-epitheliomas follow vesicular moles, and that 16 per cent of vesicular moles become malignant.

After the expulsion of the mole, the woman may again become pregnant, and this pregnancy pursue a normal course; or, with succeeding pregnancies, the mole may again develop. Williams states that vesicular moles may in rare instances be associated with pre-eclamptic toxemia.

The following methods of treatment have been employed: As soon as the diagnosis is made, the uterus is emptied, the cervix being dilated with a steel dilator or the gauze pack, and every care exercised to prevent perforation of the uterine musculature, already weakened by the invasion of the growth. Some men have employed curettage, but most observers advise against its use. After this the patient should be carefully watched for a few months for hemorrhage or metastases. Vineberg proposed hysterectomy in those cases over forty years of age. Gordon suggests radium or deep X-ray therapy. Rawls in 1922 reported favorable results with the former, used for hemor-

*Read before the Medical Association of the Valley of Virginia, at Clifton Forge, May 26, 1927.

rhage two months after the uterus had been emptied of a mole through operation done as a Caesarian section.

The following case of vesicular mole is reported because of the rarity of the condition and not because it differs from other cases I have seen in the literature.

Mrs. B., white, forty-three years of age, came to my office January 22, 1927, complaining of general weakness and a bloody vaginal discharge which had been present about a month. Just previous to this she had missed one menstrual period. She had been pregnant twice in the six years of her married life, having a child now five years old, and having been operated on—Caesarian section—for placenta praevia in June, 1925. She had never aborted, and her general health had been good, except for typhoid thirteen years ago, and dysmenorrhea when a girl. On examination anemia was apparent, the pulse was rapid (about 95), and temperature one degree above normal; otherwise negative except for the pelvic findings. There was a slight brownish vaginal discharge, a softened but not dilated cervix, uterus boggy and its outlines imperfectly defined, the fundus apparently in the position of a three or four months' pregnancy, with no foetal heart sounds. The patient was advised to go to the hospital at once. This she failed to do and I heard no more of her until the night of February 7th when I received a call to come to her home at once. On arrival I found her having severe labor pains and bleeding profusely. No products of conception had been expelled. The cervix was slightly dilated and a gelatinous mass was felt protruding. Uterine contractions were strong and with the aid of the fingers the expulsion of about a litre of vesicular mole and old blood with recent clots was accomplished. No foetal remnants were found. Pituitrin was given, and the vagina tightly packed with gauze. About one-half hour later the patient was given morphine and removed twelve miles to the hospital where she was seen by Dr. J. M. Emmett. That night, under ether, Dr. Emmett did a rapid dilatation of the cervix and with the fingers cleaned out the uterine cavity, obtaining a few pieces of the mole. The condition of the patient was such that it was felt best to postpone further operative procedures for a while. Five days later Dr. Emmett did a hysterectomy and wrote me that the uterine walls had been well infiltrated by

the growth. Microscopic examination, although not showing definite malignancy, was in some places suggestive. The ovaries were not cystic. Convalescence was rapid up until March 2nd, when there was some purulent drainage from the lower angle of the wound. This became serous and subsided in a few days, to be followed in a week by a rise of temperature and an indefinitely outlined mass in the region of the left broad ligament. This, however, subsided without drainage in ten days, and since that time the patient has felt well, has been up and about, and has gained fifteen pounds.

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PILONIDAL SINUS.

By HARRY M. HAYTER, M. D., Abingdon, Va.

Recently, as I sat talking to the chief of our surgical service, a patient entered his office and gave as his complaint, the presence of an abscess low down and near the mid-line of his back, at the same time indicating the region of the sacrum. When questioned as to the duration of this condition, he answered that it had been present for several years, and supplemented this statement with the information that it had been "lanced four or five times."

As this patient entered the examining room, the surgeon remarked that, if he had to make a snapshot diagnosis, he would say that the man was suffering with an infected pilonidal sinus. Examination proved this diagnosis to be correct.

If, on seeing such a case, one should become so interested as to look into the literature on this subject, he will find that it is scanty. The existing literature was thoroughly reviewed and a study of sixty-one cases given in a paper read

by Dr. H. B. Stone of Baltimore, before the Southern Surgical Association on December 11, 1923, and published in the *Annals of Surgery*, March, 1924.

In view of the fact that such brief discussions of this condition are given in the standard textbooks of surgery, and of the scarcity of original articles, one might conclude that the condition is one of little importance. However, it is not so to that unfortunate individual who possesses one which has become the site of infection: neither is this true for the physician who, not recognizing the true nature of the condition, hopes to obtain a cure by incision and drainage of the area involved.

The condition was first described by J. M. Warren in 1867. The diagnosis is easy if one has ever seen a case, or if the existence of such a condition is kept in mind. The lesion occurs more frequently in the male than in the female. Of the sixty-one cases studied by Stone, only ten, or sixteen per cent, were females. All of the sixty-one cases occurred in the white race. Forty of these sixty-one cases were seen in the Johns Hopkins Hospital which has a very active colored service. However, not a single case was seen in the negro. The average age at which the lesion makes itself manifest in this series of cases was twenty and one-half years. In a series of twenty-two cases seen on the service of Dr. Hugh H. Trout at the Jefferson Hospital in Roanoke, Virginia, the average age at which the condition began to cause symptoms was twenty-one years. All of these cases occurred in the white race. Of this series of twenty-two cases, six of the patients were females and sixteen were males.

The lesion, while being a congenital one, usually makes its presence known in early adult life.

In 1880, Hodges gave the name of "pilonidal sinus" to the lesion, which is located on or near to the posterior mid-line of the body in the region overlying the sacro-coccygeal joint, and which presents itself, in its uncomplicated form, as a small, round or oval orifice, with smooth skin covered edges. The orifice is from three to five millimeters in diameter, is free from granulations, and may or may not contain a small tuft of hairs.

If infection has taken place, which is practically always the case, as it is the infection which gives rise to the symptoms from which the patient seeks relief, the picture is that of a red, swollen, tender area, with pus discharg-

ing from the original epithelial lined sinus, as well as from others which have developed spontaneously, or have resulted from simple incisions made into the area involved. Such sinus can be differentiated from the original one by the fact that it contains granulation tissue.

The conditions from which an infected pilonidal sinus must be differentiated are fistula in ano, osteomyelitis of the sacrum and infected haematoma.

Fistula in ano is located nearer to the anal orifice and a probe introduced into the sinus passes downward towards the rectum rather than up over the sacrum as it does in a pilonidal sinus. Granulation tissue is usually present in the fistula in ano.

In osteomyelitis of the sacrum, the probe will encounter bone rather than end in a blind pouch of soft tissue, as it does in pilonidal sinus. The X-ray is of great value in differentiating between these two lesions.

Quite frequently symptoms referable to an infected pilonidal sinus date from some injury. However, the dimpling and the presence of an epithelial lined sinus will differentiate this condition from a haematoma which has become infected.

A number of these patients have had previous operations, the operation consisting of incision and drainage or incomplete excision of the epithelial lined sinus. Of the sixty-one cases studied by Stone, twenty-five had one or more previous operations. In our own series of cases, thirteen had had previous operation, the greatest number in any one single case being eighteen.

Frequently the lesion is found in two or more members of the same family.

All of the cases which we have seen have been complicated by infection; hence, it has not been our privilege to study the histology of the uncomplicated pilonidal sinus. However, if I may be allowed to quote a paragraph from Stone's article, it will give you the histological picture of a pilonidal sinus which has not become inflamed.

"The lumen of the sinus contained hairs. The inner portion of the wall was of many layers of stratified cuboidal epithelium with only slight cornification adjacent to the lumen, but with imperfect and rudimentary papillar in certain area. Hair follicles were seen and also sweat glands. Outside of the epithelial layer was a dense corium-like sheath, and be-

yond the loose fat and areolar tissue. Some of the sweat glands lie in the fat at quite a distance from the lumen of the sinus. In short, the sinus is a slightly modified imagination of true skin. None of its elements were fully developed, even the characteristic hair is thin, fine and scanty, in pigment, somewhat like lanugo."

The origin of this lesion is not known. Various theories have been offered to explain its occurrence. The earliest theory was that of Warren who considered the lesion to be due to a "reversed hair-follicle." Another theory is that the sinus originates from a remnant of the medullary groove, which is known as the "coccygeal medullary vestige."

It is the view of Dr. G. L. Streeter of the Department of Embryology, Carnegie Institute of Washington, that the histological picture found in this lesion would indicate a down growth of epithelium originating from the true skin. Just why such a down growth of epithelium should occasionally take place in the coccygeal region is not known.

Treatment of pilonidal sinus is surgical. To prevent a recurrence it is necessary to excise the entire epithelial lined tract. If one is so fortunate as to see a case before the lesion has become inflamed, the sinus can be excised and the wound closed. However, the usual case is infected and that means excision with drainage, and that the wound must heal by granulation. Too often the patient comes into your office, or into the hospital, after having been told that the lesion is of no consequence; hence, he is surprised when told that it means wide excision and a granulating wound for several weeks.

It is our practice to make an elliptical incision around the site of the lesion, undercutting the skin, and dissecting downward until the fascia covering the muscular attachments and the sacrum are exposed, then removing in a mass the fatty tissue surrounding the site of the lesion. In following this procedure we have obtained very satisfactory results. However, even with this attempt of radical excision we have had two cases to return to us for another operation.

George Ben Johnston Memorial Clinic.

PHYSICAL DIAGNOSIS AS A PART OF SOCIAL CASE WORK.*

By. BASIL B. JONES, M. D., Richmond, Va.

When a family or an individual calls on a Social Agency for aid, it usually means that the difficulties of living have become so great that they cannot be overcome without assistance. The causes which underlie the various calls for assistance vary with each individual case. Consequently, if treatment is to prove efficacious, it, too, will have to vary according to the indications of the individual case.

The best way to render assistance is probably somewhat in accord with the following formula. First, discover the causes. Second, determine if possible the effects on the individuals. Third, try to answer the following questions: What do the clients think about the situation? Do they consider the situation hopeless, or merely an occasion of temporary embarrassment? What is the attitude toward the world or things in general? Incidentally, it is very helpful to know the attitude toward yourself. If it is hostile, your best endeavors may be futile. If they look upon you as a friend who has their best interest at heart, often a great deal can be done.

As I see it, the aim of the Social Worker should be to help individuals get back to a self-supporting basis as soon as possible. In order to accomplish this end, it is of course important to avoid pauperizing or coddling operable cases. Your efforts should be directed toward building up self-reliance in your clients.

As a final admonition, it must be recognized that some cases are inoperable by your technic. Clients with whom you cannot deal constructively should be transferred without too much delay to the proper hands.

Physical defects and ill health often figure prominently as causative factors in social inadequacies, and frequently make up a large part of a vicious circle. For example, a man's health becomes poor, his poor health interferes with his work, and he may lose his job because of this. The resulting poverty and mental distress not only interfere seriously with this man's social adjustment but also tend further to undermine his health. It is obvious that in such cases the physical ailment must be corrected if constructive work is to be done. In this connection let me urge you not to rely on hearsay diagnosis, or on your own personal as-

sumptions. It is essential that you have your client examined by a physician if you are to do your work intelligently. Information obtained from the examining physician will give you a better understanding of your case, and often will give you a plan of procedure which will accomplish definite results. The examination and proper treatment of possible wage earners will often convert a liability into an asset. Examination of the wife will often reveal some condition which could be relieved by appropriate medical treatment. If such treatment is provided, a semi-invalid often may be converted into a happier and more efficient person, and many of the complexities of your job will be solved. Frail or sickly children often constitute a large problem of immediate concern. When the children are sick, the household is disturbed, and, in addition, there is the added expense and fatigue, which constitute a definite drain on the over-burdened parents. Acutely ill children demand attention; the malnourished, frail, child is often overlooked. If you would build for the future, it is important to remember that children often offer the best opportunity for constructive work. Many illnesses and much bad health can be prevented, and most children can be given stronger bodies and better health if properly handled and fed. For your guidance in this important part of your job, advice from the physician is essential.

A complete medical examination consists of three distinct parts: the history, the physical examination, and enough laboratory work to clear up questions not already solved. In a large series of cases a study was once made to determine which part of the medical examination was the most important. In this study it was found that in about 75 per cent of the cases where a diagnosis could be made, the history was either strongly suggestive of the diagnosis or essential for the proper treatment.

My experience at the Children's Memorial Clinic has shown me that it is not only valuable to the physician but also to the social worker, for the worker to take the medical history of the patient before she brings the child to the Clinic. Where history blanks are available, the question should be filled out by the social worker in such a way as to picture clearly the medical background of the patient. For example, instead of answering the question, "Has the child had measles", with a simple, "Yes"; give enough information to

show what occurred, e. g., "Yes—1924, mild", or "Yes—1924—complicated by abscessed ears and pneumonia. Convalescence slow—Mother thinks child's present trouble dates from this illness". Generally the patient's own description of symptoms should be given, and in quotation marks if indicated. The history also should contain the details of diet and the daily mode of living. The statement of facts is of far greater value to the physician than personal summaries or interpretations. For the purpose of illustrating the role of physical diagnosis in social case work, I have selected a family that I know well.

THE BROWN FAMILY

This family consists of seven individuals. Mr. Brown is not a robust man. He has a speech defect, and some peculiarity of manner, which suggests a disease of the central nervous system. In addition, he has been bothered for some time by a hernia. He is the type of individual who generally is laid off when work becomes slack. He has never consented to have a complete physical examination. Consequently, we did not know as much about him as we should.

The mother is a frail-looking woman who has had tuberculosis in the past. Apparently this disease is not now active. She has a tumor of some sort that should receive attention. In addition to her frail health, she has been pregnant eight times and has had to take care of all the household duties. It is not surprising that she has felt that she had to keep the younger children in the house most of the time in order to keep her eye on them.

Virginia, nine years old, is 12 per cent under the average weight for her height. She has thirteen carious teeth. Several abscessed teeth have been drawn. She has a heart lesion which probably resulted from numerous infections of her teeth and tonsils. She also has some enlargement of the glands in her chest. This trouble may possibly be tuberculous. In addition, she wets the bed every night.

Louise, eight years old, is 17 per cent under the average weight for her height. She has several skeletal defects which indicate a previous rickets. She has three carious teeth. Several of her teeth have been removed. She also has a heart lesion. She wets the bed every night.

Mary, six years old, is small for her age, but is not underweight for her height. This apparent evidence of normality may in reality

indicate a slight under-activity of the thyroid gland. She has twelve carious teeth. At the time of the examination she had a pulse rate of 150. Her temperature was 99.8. There was a heart murmur, which, with the other findings, suggested an acute endocarditis. She had several superficial infectious lesions on her skin. She wets the bed every night.

Doris, three years old, is small for her age. She is not underweight for her height. She has two carious teeth. She is slightly anemic. She has several superficial infectious lesions on her skin.

Raymond, twenty months old, is small for his age. He is definitely anemic. He has a slight rickets.

This whole family, but especially the children, illustrate what an inadequate and poorly balanced diet, plus the lack of fresh air and sunshine, will do to impair the efficiency of the human body, and make it a fertile field for disease germs. Fortunately, the children are made of tough fibre—otherwise one of their many illnesses would have carried them off before this—and most if not all can be made useful and fairly strong if handled properly from now on.

If constructive work is to be done in this family, provision must be made for the supply of proper diet and sunshine for all the family. Dental work will have to be provided to take care of the immediate needs. Some of the children will have to have operations for the removal of foci of disease, for example, tonsils. Proper rest and medication must be provided for those ill at present. The physician can easily outline many of the necessary steps to take in rehabilitating this family. It is the duty of the social worker to see that the advice is put into effect. Frequent check-up visits must be made to see that things are going along all right. If it is found that things are not going properly, further consultations with the doctor should be arranged. Neither the doctor nor the social worker, working singly, can accomplish much in this family; working together they might accomplish a great deal.

The Brown family was chosen as an illustration of the necessity for close co-operation between the doctor and the social worker. Fortunately this family is not typical; unfortunately, it is not unique.

1001 East Clay Street.

CONCLUSIONS REGARDING RETIREMENT.

The Teacher in the Medical School. The Chief in the Hospital.

By I. S. STONE, M. D., Washington, D. C.

Many of the "born teachers" have passed away and a new type now occupies the arena of the lecture room, laboratory and hospital. Revision of Medical Schools has almost abolished personal or family influence in the selection of a faculty, and standards have been raised that necessitate vast changes in the personnel of our schools.

So far as our chief interest extends at present, we see no necessity for change in the method of selecting teachers or hospital staffs, but recent developments in supervision of the output of our schools, as by the American Medical Association and Association of American Medical Colleges, may bring close scrutiny of this output, with some degree of pressure, upon certain institutions.

Among other matters for serious thought will be the kind of service rendered by instructors, and whether age proves an obstacle to the most efficient teaching. It will doubtless be seen that the productive period in some individuals continues much longer than in others. By reference to the Index Medicus it may readily be seen that the mental activity of some of our prolific authors subsides nearly as the physical frame loses its elasticity,—if we may judge by the number of their contributions which appear in that accurate record. A glance over its pages will show up our contemporaries as well as ourselves.

THE "FIXED PERIOD"

Retirement at a fixed period has certain features worthy of consideration. As the position of assistant or associate is sought because an unwritten but definite rule leads to promotion in rank (as from associate to chief of service, with membership on the Medical Board), a fixed period should prevent pressure upon a chief by a younger class, which pressure is intended to remind him that his retirement would be welcome.

To the well-trained man of forty who has shown his ability and fitness for any service in the hospital, the outlook becomes very interesting and he cannot be blamed for entertaining hopes which may afford him an opportunity to gratify his ambition.

TWO SUGGESTIONS FOR FUTURE THOUGHT

1st: Should a time limit be set for a teacher or chief,—say for twenty years, more or less?

2nd: Will the chief who prefers to hold his position until health decides for him,—say at seventy, be in a better financial position than if he had retired at fifty-five or sixty, while still in full practice and in a commanding position professionally? In the second instance he would be able to continue his private practice while otherwise his practice would hardly prove renumeration.

Finally, we believe that a vast majority of practitioners will prefer to continue an unlimited and unrestricted practice unless failing health interferes. There are, however, very good reasons why age and infirmity should be anticipated and suitable insurance be carried for this purpose. Many experiments in medical insurance have been tried, as may be seen in the literature. What may eventually be developed in our great medical schools or medical organizations looking toward suitable provision for retirement of teachers, remains for the future to disclose. Perhaps at some distant date, when philanthropists come to realize the value of the altruistic efforts of the Medical Profession looking toward a better, healthier and happier world, due appreciation may be forthcoming.

1618 Rhode Island Avenue, Northwest.

Bibliotheca Obstetrica

Walter Channing.

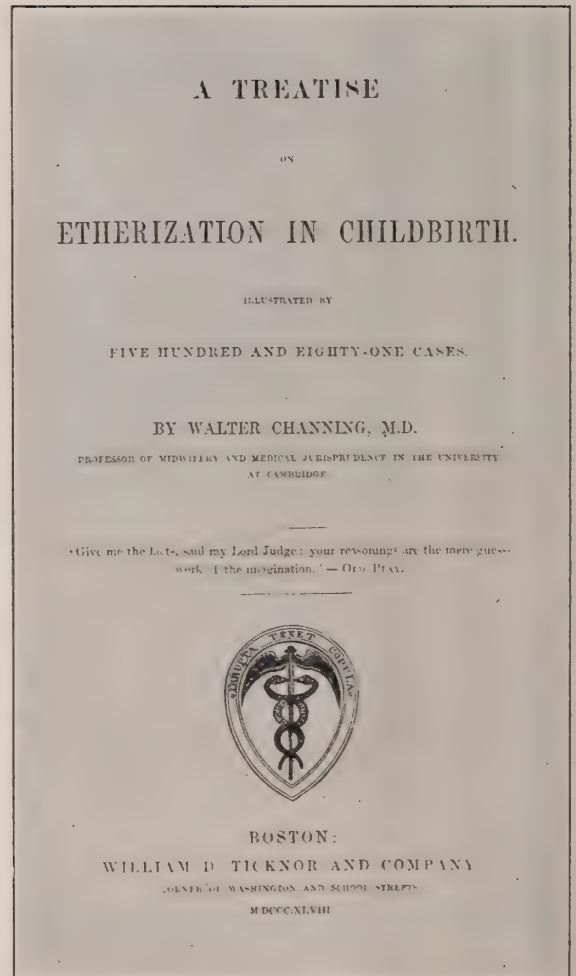
Channing (Walter) [1786-1876]. A treatise on etherization in child-birth, illustrated by five hundred and eighty-one cases. viii, 400 pp. 8°. Boston, W. D. Ticknor and Co., 1848.

Also, *Editor of: New England Medical Review and Journal*, 1827.

For *Biography*, see *Boston M. & S. J.*, 1876, xcv, 237. also *Cyclopedia of American Medical Biography*, Philadelphia, W. B. Saunders Company, 1912, i, 169.

Dr. Channing was professor of obstetrics and medical jurisprudence in Harvard University (then called the Massachusetts Medical School) and was on the visiting staff of the Massachusetts General Hospital when etherization was introduced into the surgical

practice of that institution. He became very much interested in the use of ether in obstetrics and was largely instrumental in popularizing obstetrical anesthesia. In 1848 he was able to collect 581 cases, which he published in detail along with various, and as it seems to us now, whimsical arguments in favor of such practice. In most of the cases a state of analgesia, rather than a state of anesthesia was induced. In for-



Reproduction of title page of Dr. Channing's "Treatise on Etherization in Childbirth."

ceps deliveries, he recommended that the instruments be applied before etherization. The teaching of the times was that the patient's sensations were an important guide in the proper application of the forceps. By delaying the etherization you did not lose this important guide.

Dr. Channing was the grandson of a signer

of the Declaration of Independence, the son of a distinguished Rhode Island attorney, the brother of a noted Unitarian clergyman and the father of a poet. He himself was the first professor of obstetrics in the Harvard Medical School and at one time its dean, an editor of the predecessor of the *Boston Medical and Surgical Journal*, the librarian of the Massachusetts Medical Society, an ardent temperance reformer and a zealous citizen. He was an A. B. of Harvard, graduated in Medicine at the University of Pennsylvania when Dr. Rush was president, continued his medical studies under Dr. James Jackson, of Boston, and at Edinburg University and the London hospitals. He was an honorary fellow of the Obstetrical Society of London. He was a Bible student and a lover of Shakespeare and Scott. He kept fine horses, but was a poor driver. He was very charitable, devoted to the poor and loved to be imposed upon. He died at the age of 90 among his books and grandchildren.

M. P. R.

Correspondence

What Does the Word "American" Stand For?*

Richmond, Va.,
September 7, 1927.

TO THE EDITOR:

While the Nation has wrangled spectacularly over the airplane, I have waged a single-handed fight, for the most important of all—health of the men behind our guns. My survey of health conditions in the American Navy which extended half way around the globe, established that the frequent changes in personnel is due, among other things, not only to a shortage of medical and dental officers and nurses, but that we accept untrained physicians, who are engaged in duties which should be executed by clerks. During the fiscal year 1926, more than half of the American navy was on the sick list, which cost upwards of three million dollars. It is unthinkable that, of our personnel of 115,391 officers and men, representing the flower of American manhood for 1926, who should be ready for any emergency, 61,372

of the Nation's defenders lost 1,219,031 days on the sick list. Does this sound like preparedness? What would happen if such a state of affairs existed with submarines, cruisers or airplanes? Isn't the man behind the gun entitled to the same consideration as the ship? If the unearned salaries alone were spent in preventable medicine, it would reduce sickness and save millions of dollars.

I know of nothing more pathetic than to witness an untrained doctor who returns the voiceless sailor to duty with a perfunctory dose of physic, when he should have been placed on the sick list, and in the meantime, the disease advances. The physician of mature training will not enter the Navy, because he can make more money in civil life; besides, he objects to our system, which needs adjustment. Capable doctors are infinitely cheaper than the maintenance of naval hospitals and pensions. Within six years we have invalidated 33,140 of our selected risks back to civil life. The approximate shortage of 136 doctors means doctorless ships, which is as disastrous relatively, as gunless battleships. If Navy doctors who are representatives of the American people, as much so as congressmen, were invited to discuss Navy health, there would be less occasion to condemn bureaucracy. The time has come for the American people to know why it is necessary to adorn the streets with recruiting posters, while the industrial plant has a waiting list. If such preventable diseases as tuberculosis were given as much publicity as the Army and Navy football game gets, it would strengthen both national defense and the treasury. If we exhausted the United States Treasury in building cruisers, submarines and airplanes, and then do not exercise our utmost resources in curtailing disease, desertion, dishonorable discharge, pension and death, to a minimum, our naval policy will be unsound.

The Executive Committee, Virginia Department, American Legion, endorsed my survey with a recommendation that I be permitted to address the Naval Affairs Committee at the National Convention which was held in Philadelphia, October, 1926. I read a comprehensive paper before this committee, entitled "The Navy's Human Accountability", which represented massive human disasters, incident to the Nation's selected youths—taken from the official record, not only incontrovertible, but never discussed with the people. The Committee unanimously resolved, that Navy health

*Read before the Resolutions Committee, Virginia Department, American Legion, at Newport News, Va., September 5, 1927.

conditions should be acted upon by the Convention, then in session. The Chairman of the Committee, apparently, deliberately muzzled the resolution by not bringing it to the attention of the Convention, which has since been recovered from National Headquarters files, by the Virginia Department.

When I tried to get an article in the *American Legion Monthly*, concerning the health of American sailors, it was turned down; whereupon I inquired what it would cost to insert my article as a paid advertisement, and the reply, dated December 28, 1926, recited "the *Monthly* is guided largely by the advice of the chairman of National committees in the absence of specific resolutions adopted by the national conventions of the American Legion or other official action on a given subject. I am enclosing a copy of our advertising rate card. I believe the cost of advertising would be greater than you would wish to bear."

On February 24, 1927, National Commander Howard P. Savage, appointed former Secretary of the Navy, Hon. Edwin P. Denby, the new chairman of naval affairs. All the papers in the case were sent to Mr. Denby, who wrote me on June 27, 1927, in part, "it is not likely that I shall endeavor to get before the Convention your survey or any resolution in regard thereto". The foregoing is a mere summary of the case and conditions. Let it be clearly understood that I am making a specific complaint, as every one should know—that the American Legion as an organization has accomplished great good in the direction of humanity. Our best ships were scrapped—we are not in the league of nations—the Geneva Convention has collapsed—and if our honest to God American doctors are to be muzzled, the job might as well be completed—muzzle the guns. The airplane may have replaced the battleship, but it has not reduced disease or injury. Doctors should deem it a pleasure and a duty to write to their representatives in Congress, in order to have these conditions corrected.

W. ARMISTEAD GILLS, M. D.,
U. S. Navy (Retired).

The Woman's Auxiliary, composed of the wives, daughters, mothers and sisters of members of the Medical Society of Virginia, is to have a meeting in Petersburg, October 18-20. Information about this may be secured from Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Woman's Auxiliary, Medical Society of Virginia

To the Doctors.

It is a wonderful privilege you have granted us, the forming of the Woman's Auxiliary to the Medical Society of Virginia, and we want you doctors to know that we desire nothing more than to be asked to do something for the medical profession.

Our efforts are to do for you what you would have us do, as wives and daughters of you wonderful men, who go about constantly all over the state doing your work for humanity. It is our hope that in the years to come we may increasingly serve you as a true Auxiliary.

As the day approaches for the State Medical meeting, it is earnestly desired that the doctors understand more fully what the Auxiliary means to the profession. We are not seeking to place our husbands or friends in office and we know nothing of your politics. We are only what the name implies, an Auxiliary, doing only the work desired of us by the medical profession. Our motto is SERVICE.

The Auxiliary is not a club, but an organization—a reserve force. Each member is connected with one or more social, literary or civic clubs in her community. Every one of these clubs should be persuaded to provide at least one health program during the year. It is the doctor's wife who can do this best.

The aims of the Auxiliary are to supplement and strengthen the work of the medical profession, advancement of health and education along the lines and through the channels best known to women. This is being studied by groups making up the organization in all parts of the country. This work will not accomplish its true mission until every county in Virginia is organized.

Let us seize the opportunity to carry the MESSAGE OF HEALTH AND EDUCATION to every part of our state, to every doctor's wife, and thus through an extensive, intensive organization plan reach all other womens' organizations which look to the advancement of health and education.

Each County Medical President has been asked to approve an auxiliary to his County Society, and it was learned that a large number of these County Medical Societies do not meet regularly, sometimes not meeting for as

much as two years, and some counties have no Medical Society. This shows the great need of the Auxiliaries because wherever there is an Auxiliary (meeting at same time and place—but not same room, as the doctors), there is an active Medical Society. Such an Auxiliary, even if there are only three or four members (composed of wives, daughters, mothers and sisters of doctors), can be of great service to the profession, though they do nothing more than hold together the Medical Society. Naturally, if the wife wishes to attend a meeting the husband will make an effort to go and take her there. It is hoped that every doctor will bring a woman member of his family to the State Meeting in Petersburg, October 18th-20th.

You doctors can really be of the utmost help to the Auxiliary. We do need you and we want you to need us, so please call upon us.

The American Medical Association has asked two things of us: It expects the Auxiliary to represent *Hygeia* and place that splendid magazine in the hands of the laity in every home in the State. You can help us by giving the Auxiliary your subscription to *Hygeia*. With the commission derived we place free subscriptions where they will do the most good. So please go over to the booth in Petersburg and take out your subscription, or renewal, a two-year one if you will, or order some for Christmas presents for your friends. Do let the Auxiliary have the credit of your subscription, because your State is way behind others in *Hygeia* work.

The largest problem that has been presented to us by the National Organization has been the request that we put over the idea of the annual, thorough physical examination among our own members. We have really had a bit of difficulty with that, because some of you men have not seemed to want to examine these poor charity patients,—that is all a doctor's wife seems to be. We want you to be as thoroughly imbued with the idea of the thorough physical examination, from now on, as we are. Any of you who happen to have cranky wives, or as we claim, sick wives (we think all wives are good wives, and that if they are cranky wives they are sick), should have them examined, for we need them to work for us. If you do not need them we do. So please have them well and bring them to Petersburg.

You will see by the program sent you that we have planned a very interesting meeting.

You are our expected guests. Know this, then, we who are banded together for the purpose of serving the doctors, join in this cordial invitation.

We extend to you an outstretched hand and place ourselves and all we are, at your command.

(Signed) THE OFFICERS OF THE WOMAN'S
AUXILIARY TO THE MEDICAL
SOCIETY OF VIRGINIA.

The Truth About Medicine

In addition to the articles enumerated in our letter of July 30th, the following have been accepted:

Abbott Laboratories

Acetarsone

Amiodoxyl Benzoate—Abbott.

Ephedrine Sulphate—Abbott.

H. K. Mulford Co.

Diphtheria Toxin—Antitoxin Mixture, New Formula, Park-Banzhaf's 0.1 L+.

Erysipelas Streptococcus Antitoxin (concentrated)—Mulford.

Non-proprietary Articles

Amiodoxyl Benzoate.

NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxin-Antitoxin Mixture, New Formula, Park-Banzhaf's 0.1 L+ (New and Non-official Remedies, 1927, p. 341).—This product is also marketed in packages of one 10 c.c. vial, representing three immunizing treatments. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., August 20, 1927, p. 600).

PROPAGANDA FOR REFORM

Plasmochin.—The Council on Pharmacy and Chemistry issues a preliminary report on "Plasmochin," a synthetic quinoline derivative, developed in Germany and proposed for use in the treatment of malaria. For many years attempts have been made to find a substitute for quinine that would be cheaper, less bitter, less toxic and more specific than quinine. Plasmochin appears to be a step forward in this search, though it is not a full solution of the problem of eradicating malaria. It is said to act by destroying some of the forms of the malarial parasite and by inhibiting the development of others. Those who have studied the drug appear to agree that the new drug is most effective on the quartan forms of malarial parasite, that in tertian malaria a combination of the new drug with quinine is more effective, and that in birds the drug is sixty times more effective than quinine. The Council points out that results derived from the study of bird malaria have chiefly a suggestive value, and that further clinical study must be made before any optimistic estimate of its value in human beings can be formed. The Winthrop Chemical Co. has imported the drug for clinical trial and this is labelled to be "ethylaminoquinoline tannate." The firm states that the product when placed on the market in this country will be manufactured here. The Council has postponed further consideration of Plasmochin until clinical evidence concerning the

efficacy, safety, and dosage of the product is available. (Jour. A. M. A., July 9, 1927, p. 113).

Limitations of Goiter Prophylaxis.—Government authorities believe that there is no reason for special goiter prevention measures on the part of the state and local health departments. They do not see any necessity for universal prophylaxis such as may be attained by iodization of table salt or municipal water supplies. There is a growing opinion that the administration of iodine as a means of preventing goiter should be under the guidance of physicians and should be individualistic. In this way much good may be accomplished. (Jour. A. M. A., July 9, 1927, p. 114).

Vaccination of the New-born Against Tuberculosis with Bacillus Calmette Guérin.—The history of the vaccination of new-born infants against tuberculosis with Bacillus Calmette Guérin (abbreviated B. C. G.) since July 1, 1924, in France, and other countries over a period of two and one-half years, to January 1, 1927, has just been reviewed by Professor Calmette with his co-workers Guérin, Nègre and A. Boquet, at the Pasteur Institute in Paris. The vaccine is a living tubercle bacillus of bovine origin rendered avirulent for all animals by 230 passages on bovine bile medium. For the preparation of the vaccine, the B. C. G. organism is transferred from the bile medium to a synthetic medium, cultured, and an emulsion of bacilli prepared. Two c.c. of the finished preparation constitutes a dose to be fed to an infant in milk. Three doses are given. A total of 43,283 children have been thus vaccinated. The various papers which are reviewed may be said to represent the culmination of the life work of a revered scientist. They may open a new era in the eradication of tuberculosis and in the knowledge of its epidemiology. For the United States, however, and for all countries it would seem wise to hold in check uncontrolled enthusiasm for its use until those charged with the responsibility of safeguarding the public have carefully proved that the method and the premises are sound. (Jour. A. M. A., July 9, 1927, p. 115).

Cactina Pillets Again.—Twenty years ago preparations of *Cactus grandiflorus*—the Mexican night-blooming cereus—had considerable vogue, chiefly because of the extravagant advertising claims made for two preparations said to be derived from it—"Cactin" and "Cactina." In 1908, Sollmann thus ironically described the claims made for these preparations: "Should the heart be too slow, cactus quickens it; if the heart is too fast, cactus slows it; should the heart be too weak, cactus strengthens it; if the heart is too strong, cactus weakens it; does the heart wobble, cactus steadies it; if the heart is normal, cactus does not meddle with it." Subsequently a number of reports were published showing pharmacologically and clinically that preparations of cactus were inert. As a result of the thorough exposure of the worthlessness of cactus preparations, proprietary houses have generally abandoned their exploitation. While "Cactin" (now called "Cactoid") is still offered for sale and is still the "joker" in a proprietary morphine-scopolamine preparation, no claims for it are advanced. In the case of "Cactina Pillets," however, the proprietor—the Sultan Drug Co.—still finds it profitable to continue advertising in a certain class of so-called medical journals and to continue making the claims that have been so thoroughly disproved. To those who give credence to these advertising claims, a recent clinical study will be of interest: it reaches the conclusion that Cactina Pillets are no more than a placebo, thus agreeing with Sollmann, who twenty

years ago called the preparation a psychic cardiac tonic. (Jour. A. M. A., July 9, 1927, p. 138).

Bismarsen.—The Council on Pharmacy and Chemistry publishes a preliminary report on Bismarsen, the name given by the Abbott Laboratories to a new derivative of arsphenamine containing bismuth and proposed for use intramuscularly in the treatment of syphilis. Bismarsen is the sodium salt of a bismuth derivative of arsphenamine methylene sulphonic acid, the exact structural formula of which has not been established. The Council reviews a report of clinical trials made by Drs. Stokes and Chambers and of a study made for the Council. The Council finds that the available evidence is insufficient to permit the acceptance of the drug for New and Non-official Remedies; however, the generally favorable character of the reports together with the fact that Bismarsen is a chemical substance of controlled composition is sufficient to warrant its further trial by physicians with due recognition of the fact that the drug is still in the experimental stage. For the information of those who desire to use this compound, the Council publishes a description of the chemical properties, the actions, uses and dosage of the drug. (Jour. A. M. A., July 16, 1927, p. 204).

Radithor.—This is one of the numerous pieces of quackery in the field of radioactivity. It is exploited by the Bailey Radium Laboratories of East Orange, N. J., the moving spirit of which is one William J. A. Bailey. The Radithor quackery consists of thirty half-ounce bottles of distilled water, which is alleged to be radioactive. No less than thirty bottles can be purchased; and the price is \$30. That is, the price to the sucker who happens to be a layman is \$30; to the easy mark who can write M. D. after his name, it is \$25. An order from "----- for Doctors' Use Only" states that "when patient buys direct, we allow doctor a \$5 credit on all orders." The physician who would order Radithor must be weak not only in medicine but also in morals. (Jour. A. M. A., July 16, 1927, p. 208).

"Viscose" for Varicose Veins.—The Viscose Company, Los Angeles, California, sells a small amount of a glue mixture with a few rolls of gauze bandages for \$30. This combination is sold as a means of reducing varicose veins. Apparently, the Viscose Company also gives medical treatment to those who will come to its headquarters. The treatment consists of the mixture "Viscose," which is melted, applied to the leg and covered with gauze; more "Viscose" and gauze are applied and finally all covered with a paper bandage. An analysis of "Viscose" in the A. M. A. Chemical Laboratory showed it to be essentially a mixture of zinc oxide and glycerin in a gelatine base. The Laboratory pointed out that the name is misleading, as Viscose is a well recognized chemical substance. (Jour. A. M. A., July 16, 1927, p. 225).

The Joy Beans Laboratories Fraud.—One Frank Beland, of Cairo, Illinois, exploited an indecent piece of quackery under such trade name as "Joy Beans Laboratories" and "Beland Laboratories," selling a preparation called "Joy Beans" as a sexual tonic. Beland had no medical or professional training; his nostrum was put up for him by Eli Lilly and Company, Indianapolis. Beland's exploitation of this aphrodisiac was found fraudulent by the post office authorities and was barred from the use of the mails. (Jour. A. M. A., July 16, 1927, p. 225).

Pancreols.—In the advertising of the Drug Products Co., Inc., Pancreols (formerly called Insulols), are claimed to be rectal suppositories "Containing

Specially Prepared Desiccated Pancreatic Hormone-bearing Substance Containing the Active Principle of the Islands of Langerhans." In effect this preparation offers insulin for rectal administration. Scientific evidence has not been offered for the value of this product. The rectal administration of insulin has been found of little or no value, as compared to the subcutaneous route, against glycemia, glycosuria or acidosis. The rectal administration of insulin belongs to the class of methods which are "either mechanically difficult, inconclusive, inconstant, or wasteful of the drug." No preparation of the Drug Products Co., Inc., has been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies. A number of this firm's products have been reported on unfavorably, namely: Pulvoids Calcylates, Pulvoids Calcylates Compound, and Pulvoids Natrium Compound. (Jour. A. M. A., July 16, 1927, p. 229).

Koch Cancer Foundation.—On September 22 and 23, according to an announcement just issued, the second annual convention of the Koch Cancer Foundation will take place in Chicago, one of the meetings being a joint session with the American Association for Medico-Physical Research. The American Association for Medico-Physical Research was organized in 1911 by the outstanding quack of the century, Albert Abrams. It is stated that some three hundred physicians will gather to discuss the use of the Koch remedy in cancer. But one meeting is to be a joint meeting with the distinguished members of the American Association for Medico-Physical Research. The Koch representatives should add tone to this remarkable assemblage. (Jour. A. M. A., July 23, 1927, p. 296).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Vitona (Vitona Mineral Ore Co.), consisting of a crude silicate ore containing iron sulphate, free sulphur and charcoal, with traces of calcium, magnesium and aluminum sulphate. McMichael's Allgland with Radium (Carnotite Gland Extract Company), tablets containing 91 per cent of milk sugar, together with talc, a trace of nitrogenous organic matter and a faint trace of radium. Allfood with Radium (Allfood Laboratories), consisting of about 86 per cent milk sugar and 14 per cent of material insoluble in water, comprising mainly talc, mineral matter, and a small amount of animal glandular tissue. Each tablet contained about 0.09 millimicrograms of radium. Brooten's Kelp Ore and Brooten's Kelp Ore Liquid (Kelp Ore Remedies Corporation). The first was found to be a shale-like clay containing iron and aluminum sulphates, and a trace of sulphur, while the "Liquid" was a water solution of iron and aluminum sulphates, with traces of calcium, magnesium and potassium salts. (Jour. A. M. A., July 23, 1927, p. 310).

Cultures of Lactic Acid Producing Organisms.—Pseudoscientific promotion of lactic acid producing bacteria has become familiar, and in some instances it approaches outspoken quackery. The Council on Pharmacy and Chemistry of the American Medical Association has attempted from time to time to issue conservative, tolerant statements regarding the status of the uncertain lactic acid bacillus therapy. Furthermore, it has endeavored to establish the conditions under which alone, if at all, actual implantation effects can be expected. Thus, acidophilus milk and broth cultures and concentrates of *B. acidophilus* are not considered acceptable unless the number of viable organisms contained in a stated quantity is clearly stated, and the broth cul-

tures and concentrates are made to indicate the need of the coincident administration of carbohydrates. The wisdom of the Council's cautions is indicated by the recent investigations of James in the microbiologic laboratory of the Bureau of Chemistry, U. S. Department of Agriculture. This survey of a number of marketed preparations indicated that samples representing cultures of both *B. acidophilus* and *B. bulgaricus* are not infrequently worthless. As was anticipated, the milks showed the highest average counts, the whey cultures next to the highest, and the solid cultures the lowest. (Jour. A. M. A., July 30, 1927, p. 374).

Foods in Diabetes.—A generation ago the chief concern in the management of diabetes was centered in the reduction of the carbohydrate intake; consequently, in the choice of articles of diet preference was given to those relatively poor in sugars and starches. The expression "diabetic food" came into vogue to designate a variety of products, having in common a content of carbohydrate notably below that of ordinary products of the same class. An official definition was formulated by governmental authority, permitting the application of the term diabetic to indicate that a food contains "not more than half as much glycogenic carbohydrates as the normal food of the same class." The outlook on the dietotherapy of diabetes has been considerably altered in more recent years. It is no longer merely the carbohydrate in the food that merits attention. Sugar can be formed from protein. Regulatory officials have become inclined to discourage the use of the term diabetic as a part of the name of these special foods. Accordingly there is no longer any federal definition of a diabetic food. Since such products are offered as dietetic aids in the control or mitigation of disease, they are regarded by food control officials as therapeutic agents rather than as foods and more properly regulated under the provisions of the Food and Drugs Act, which refer to drugs. E. M. Bailey, the chemist of the Connecticut Agricultural Experiment Station, has also abandoned the term "diabetic food." In his latest report he remarks that successful diets for patients with diabetes may be formulated by proper selection of common foods quite as well as by the use of special foods. He states that many of the latter serve useful purposes but are expensive. The utilization of common foods is of increasing interest to the physician and to the patient. (Jour. A. M. A., July 30, 1927, p. 376).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Sexvitor (Joseph A. Piuma), tablets consisting essentially of strychnine, a phosphorus compound, a laxative plant drug extract, and some animal matter. Rider's Eucalyptus Oil Compound (Dr. G. H. Rider Company), essentially petroleum oil flavored with sassafras. Moore's Liver-Ax (The Mount Grove Grocery Company), an extract of laxative plant drugs in a mixture of water and alcohol. Genitol (Brewer and Company, Inc.), containing 18 per cent alcohol, about 2 per cent mineral matter, sugar and glycerin. Nervo-Vital (Brewer and Company, Inc.), consisting of alcohol, glycerin, sugar, mineral matter, and a small amount of strychnine and nitrogenous matter, together with some water. (Jour. A. M. A., July 30, 1927, p. 390).

Colloidal Kaolin in Intestinal Toxemia.—Suspensions of colloidal kaolin are of little or no use in the treatment of intestinal toxemias. Colloidal kaolin chiefly adsorbs basic substance from acid

mediums. Alkaline fluid liberates the basic substance from its adsorption compound. Hence much adsorption in the alkaline intestine could hardly be expected. In practice, colloidal kaolin has been disappointing. (Jour. A. M. A., July 30, 1927, p. 393).

Ethylene—II.—The A. M. A. Chemical Laboratory reports another examination of the quality of ethylene for anesthesia which is on the market. The Laboratory reports on the composition of "Ethylene for Anesthesia" of the Certified Laboratory Products (which has been accepted for New and Non-official Remedies), and a specimen of the ethylene of the Kansas City Oxygen Gas Company, the quality of which had been questioned in a hospital. The laboratory found both products to meet the requirements of New and Non-official Remedies. The Laboratory repeats its previous recommendation, that physicians use only the brands of ethylene described in New and Non-official Remedies. (Jour. A. M. A., August 6, 1927, p. 451.)

J. M. Harris—Quack.—James S. Harris, Tulsa, Oklahoma, has for some years been quacking it in the "cancer cure" line, selling "Radium Oil." The Supreme Court of Oklahoma has recently affirmed the judgment of the trial court that had awarded a woman ten thousand dollars damages because Harris had treated what at the outset was an operable case of cancer of the breast and allowed the matter to progress until it became inoperable. (Jour. A. M. A., August 6, 1927, p. 468).

Book Announcements

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926; Consulting Ophthalmologist to the Mt. Sinai Hospital, the French Hospital, and the Italian Hospital, New York, etc. Twelfth Edition, Revised. New York. William Wood and Company. 1927. 8vo. of 445 pages, with 374 original illustrations, including 23 plates, with 73 colored figures. Cloth. Price, \$4.00.

Minor Surgery. By ARTHUR E. HERTZLER, M. D., F. A. C. S., Chief Surgeon, Halstead Hospital, and VICTOR E. CHESKY, M. D., F. A. C. S., Chief Resident Surgeon, Halstead Hospital. St. Louis. C. V. Mosby Company. 1927. 8vo. of 568 pages, with 438 illustrations. Cloth. Price, \$10.00.

Emergencies of a General Practice. By the late NATHAN CLARK MORSE, M. D., F. A. C. S. Revised and Rewritten by AMOS WATSON COLCORD, M. D., Surgeon, Carnegie Steel Co.; Ex-President, Association of Railway Surgeons, Pennsylvania Lines East, etc. Second Edition. St. Louis. C. V. Mosby Company. 1927. 8vo. of 541 pages. Cloth. Price, \$10.00.

Gonococcal Infection in the Male. By ABR. L. WOLBARST, M. D., Urologist and Director of Urologic Clinics, Beth Israel Hospital, etc., with a Chapter Written by J. E. R. McDONAGH, F. R. C. S., Late Hunterian Professor, Royal College of Surgeons, etc., London, England. 8vo. of 237 pages, with 89 illustrations, including 7 color plates. St. Louis. C. V. Mosby Company. 1927. Cloth. Price, \$5.50.

Physical Diagnosis. By RICHARD C. CABOT, M. D., Professor of Medicine in Harvard University; Formerly Chief of the West Medical Service at the Massachusetts General Hospital. Ninth Edi-

tion. Revised and Enlarged. 8vo. of 536 pages with 6 plates and 279 figures in the text. New York. William Wood and Company. 1927. Cloth. Price, \$5.00.

Potassium and Tartrates. A Review of the Literature on Their Physiological Effects. By RALPH W. WEBSTER, Ph. D., M. D., Professor of Medical Jurisprudence in University of Chicago (Rush Medical College), Chicago; Director of Chicago Laboratory; with **A Digest and Bibliography of the Literature.** By W. A. BRENNAN, A. B. Published by the Commonwealth Press, Chicago. 1927. 12mo. of 168 pages. Cloth. Price, \$2.50 net.

The Truth About Baking Power. Sworn Scientific Testimony and Government Exhibits from Records in Docket No. 540. Federal Trade Commission, Washington, D. C. Compiled and Distributed by Calumet Baking Powder Company. 172 pages. Paper.

Fistula of the Anus and Rectum. By CHARLES JOHN DRUECK, M. D., F. A. C. S., Professor of Rectal Diseases, Post-Graduate Hospital and Medical School, Chicago. Philadelphia. F. A. Davis Company, Publishers. 1927. 8vo. of 318 pages with 66 original illustrations. Cloth. Price, \$3.50 net.

Surgical Diseases of the Gall-Bladder, Liver and Pancreas and Their Treatment. By MOSES BEHREND, M. D., F. A. C. S., Attending Surgeon to the Jewish and Mt. Sinai and Northern Liberties Hospitals; Instructor in Anatomy at the Jefferson Medical College. 8vo. of 278 pages, with numerous illustrations, some in colors, including many full page plates. Philadelphia. F. A. Davis Company, Publishers. 1927. Cloth. Price, \$4.00 net.

Cream of Tartar and Tartaric Acid. By MARIAN JANE PARKER, 4100 Fillmore Street, Chicago. Ill. Pamphlet of 20 pages. Paper.

Feeding and the Nutritional Disorders in Infancy and Childhood. By JULIUS H. HESS, M. D., Professor and Head of the Department of Pediatrics, University of Illinois College of Medicine; Member Advisory Board, Children's Bureau, Department of Labor, Washington, D. C. 8vo. of 566 pages. Illustrated with 45 engravings in the text and one full-page colored plate. FIFTH REVISED AND ENLARGED EDITION. Philadelphia. F. A. Davis Company, Publisher. 1927. Cloth. Price, \$4.50 net.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on various phases of Medicine, Surgery and the Specialties. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, with Collaborators. Volume III. Thirty-seventh Series, 1927. Philadelphia and London. J. B. Lippincott Company. 1927. 8vo. of 311 pages. Cloth.

Cancer Control. Report of an International Symposium Held Under the Auspices of the AMERICAN SOCIETY FOR THE CONTROL OF CANCER. Lake Mohonk, New York, U. S. A., September 20-24, 1926. The Surgical Publishing Company of Chicago, 1927. Large 8vo. of 336 pages. Cloth.

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Editorial

Carcinoma of the Pancreas.

Kiefer¹ has recently presented this subject. His paper is based upon a review of the literature, report of cases from Peter Bent Brigham Hospital, and a general consideration of the diseases.

While this disease has been known and written of since 1836 there is not an extensive literature on this subject. The rarity of the condition may be judged by the following figures from post mortem examination: 127 in 11,472 post mortems in Milan; 226 cases in 53,000 autopsies reported by Roswell Park; Bashford reported 1,000 cases in 84,448 autopsies. Fitcher reported that of 41,949 patients admitted to the medical wards of the Johns Hopkins Hospital there were fifty-eight cases diagnosed as carcinoma of the pancreas; while of 50,494 patients admitted to Peter Bent Brigham there were diagnosed fifty-nine cases. This gives one an idea of the incidence of this disease.

It may be interesting to review briefly symptoms of this condition as pointed out by Kiefer.

SYMPTOMS

CACHEXIA: This should be regarded as a sign of advanced malignancy. It is a late symptom. In other words, cachexia may be recognized after the process has reached a stage approaching termination. In the Kiefer cases twenty-nine out of thirty-three cachexia were observed. This symptom seemed to be

extreme. The size of growth as brought out by physical examination seemed small as compared to what would be taken to be a size sufficient to produce such cachexia. This status was explained by the obstructive effect upon outflow of bile and pancreatic secretion. Both obstructive jaundice and deficient digestion tend to a cachexia. The "ill-habit" appearance is further emphasized by loss of weight. Loss of weight was noted in twenty-eight out of thirty cases. This symptom was important as it was a symptom first noted by twenty-two out of the thirty-three patients. A rather sudden loss of weight from one's usual weight excites interest on the part of the patient. Every sudden loss of weight may be taken to be important enough to warrant thorough investigation. The average loss of weight in the series was twenty-eight pounds; one patient lost fifty pounds. The rate of loss is rapid: in one case there was a loss of forty-one pounds in six weeks. In this cachexic group of symptoms, loss of appetite was found in twenty cases. This was particularly evident in those patients who were jaundiced. There was marked sense of weakness associated with the symptoms. Twenty-one of the patients expressed the complaint of loss of strength.

JAUNDICE: Jaundice is also a late symptom. It is brought about by obstruction of the common bile duct. The degree is extreme. It is not intermittent, it is progressive; it may assume that intensity known as "black jaundice". Obstruction by gall-stones is usually more or less intermittent. This type of jaundice varies usually. The impaction may relax from time to time. In this way some release of bile will occur. This mechanical situation is brought about by the fact of relative positions of the common bile duct and the head of the pancreas. In 60 per cent of normal people the bile duct at its lower end is completely surrounded by the head of the pancreas; while in the remaining 40 per cent the bile duct lies in a groove between the pancreas and duodenum. From this position bile block is brought about by pressure or metastasis.

PAIN: Pain is always an important symptom. In twenty-one of the thirty-three cases of this series, pain was a prominent symptom. It was the first symptom in four and the second in three patients.

Much attention should be paid to complaints of pain in the epigastrium. Patients with cancer of the pancreas have, according to our

1. Archives of Internal Medicine, Vol. 40, No. 1.

author, three general types of pain. One patient may have one or all at one time:

(1) A steady, dull, severe mid-epigastric pain. This radiates to the lower part of the back.

(2) A paroxysmal severe pain. This begins near the umbilicus and radiates to the back and the front part of the chest.

(3) A colicky pain in the right hypochondrium. This sometimes radiates to the right sub-scapular region. In this, it resembles pain of hepatic colic.

The study of pain in the upper abdomen, too often thought to be mere pains of indigestion, may be the most profitable means of bringing out a diagnosis at an early moment. X-ray examination supplementing physical examinations combine in offering the best method of reaching an understanding of the cause of persistent pain in the region. Exploratory operation, a more risky method, with attendant dangers, immediate and subsequent, is also a method, for study of this important sign of epigastric pain.

NAUSEA AND VOMITING: Nausea with or without vomiting was noted by Kiefer in twenty of his series. This stomach syndrome occurs, because of (1) the suppression of bile and pancreatic secretion; (2) metastatic pathology; (3) obstruction and stomach misfunctions. This is another common symptom-association, nausea and vomiting, which should be carefully run down to its origin, if possible. Patients suffering from nausea and gastric distress should be carefully examined by X-ray and stomach test, besides physically. The most evasive, but yet very significant symptom emanating from the stomach is epigastric distress—persistent dyspepsia, as often spoken of by patients. Oppression, heartburn, pyrosis, constriction in epigastrium and substernum, are a group of important sensations which are abnormal and which require interpretation. An early investigation of these symptoms is a strategic move in diagnosis.

EDEMA—ASCITES—HAEMATURIA: A little comment on these signs is pertinent here. Edema of legs in ten; free fluid in abdomen in three; haematuria as a chief complaint in one case, are notations of Kiefer in his thirty-three cases.

PHYSICAL SIGNS

Emaciation in twenty-four; jaundice in twenty-three; pigmentation of skin were noted in inspections.

LIVER: Liver was enlarged in fifteen, although easily felt in twenty-six of these cases. This enlargement is due to the bile block and metastasis, occasionally associated.

GALL-BLADDER: Infection of the gall-bladder is a common association. Gall-stones are frequently found. Previous operation for gall-stones is not infrequent. In Kiefer's series, a dilated gall-bladder was felt in fifteen of the twenty-three jaundiced cases. A palpable gall-bladder in jaundice is a frequent association in carcinoma of the pancreas. Bard and Pic, and Futeher are quoted to show this. In the examination of a dilated gall-bladder, it is found to be a hard, rounded, smooth mass, about the size of an egg, usually situated in the right upper quadrant, "distinct from and below the lower edge and descending with inspiration."

TUMOR: Carcinoma of the pancreas is characterized by a hard, irregular mass formation not large, lying in mid-epigastrium, sometimes in either hypochondrium. It may move without respiratory movement. If it lies over the aorta, pulsations are transmitted. It is tender but not painful.

Peripheral glands enlargement, dilated veins, intestinal obstruction, edema, ascites, hydrops of pleural sacs, are a few signs observed in this series.

LABORATORY EVIDENCE: Glycosuria is commonly associated, although true diabetes appears to be rare. Glycosuria is intermittent. A quotation from Joslin notes that in 5,121 cases of diabetes, cancer of the pancreas was diagnosed only in thirteen instances.

Blood disturbances are leucocytosis and anemia. In fifteen of fifty-three cases a count of over 10,000 leucocytes was made, while in nine of twenty-one cases, less than four million erythrocytes were noted. In jaundice, blood serum is highly colored.

Stools showed absence of bile in twenty-three cases; occult blood was present in ten of twenty-seven patients. Fat was determined in seven cases. Food fat is lost in stools in large amount. Roentgen ray examination is held by Kiefer as of little positive value. It is of value, however, in ruling out cancer of the gastro-intestinal tract proper. Where the tumor mass displaces normal lines by pressure or adhesions, this inference may be made.

DURATION: The duration of life varies. According to a quotation from Bard and Pic, duration of life after onset of the symptoms

is from six to seven months; Marillie, four to five months; Parmentier and Chabral, four to seven months. Keifer's series showed an average life of four and three-tenths months.

News Notes

All Aboard for Petersburg!

All roads for Virginia doctors should lead to Petersburg, October 18, 19 and 20, for the fifty-eighth annual meeting of the Medical Society of Virginia to be held in that city. The programs sent each member, recently, show much of interest scientifically as well as socially. Our invited guests will be featured on Tuesday and Wednesday evenings.

Several affiliated societies and alumni meetings will be held in the form of luncheon or dinner meetings. Indications are there will be a large attendance, and each component society is urged to have representation in the House of Delegates. The first meeting of this body is to be held on Tuesday, October the 18th, at 4 P. M., in the Petersburg High School, for the purpose of disposing of as much business as possible prior to the scientific sessions.

This list of delegates whose names have been sent this office to time of going to press are as follows:

ALBEMARLE—Dr. M. L. Rea, Charlottesville, *delegate*.

ALEXANDRIA CITY—Dr. G. T. Klipstein, Alexandria, *delegate*; Dr. P. B. Pullman, Alexandria, *alternate*.

ALLEGHANY-BATH—*Alleghany County*, Dr. B. R. Hudnall, Covington, *delegate*; Dr. I. T. Hornbarger, Hot Springs, *alternate*.

BATH COUNTY—Dr. Edgar A. Pole, Hot Springs, *delegate*; Dr. J. W. Wallace, Covington, *alternate*.

AMELIA—Dr. James L. Hamner, Mannboro, *delegate*.

ARLINGTON—Dr. R. N. Sutton, Clarendon, *delegate*; Dr. W. C. Welburn, Ballston, *alternate*.

BOTETOURT—Dr. M. T. McCulloch, Troutville, *delegate*; Dr. R. T. Givens, Glen Wilton, *alternate*.

FAIRFAX—Dr. Wm. Meyer, Herndon, *delegate*; Dr. F. M. Brooks, Fairfax Station, *alternate*.

FLOYD—Dr. J. L. Harvey, Simpsons, *delegate*.

FREDERICKSBURG—Dr. Frank C. Pratt, Fredericksburg, *delegate*; Dr. T. Welch Dew, Fredericksburg, *alternate*.

HALIFAX—Dr. S. T. A. Kent, Ingram, *delegate*; Dr. R. H. Fuller, South Boston, *alternate*.

LEE—Dr. P. D. Pence, St. Charles, *delegate*; Dr. C. C. Pearce, Pennington Gap, *alternate*.

MID-TIDEWATER—*Gloucester*—Dr. Jas. W. Smith, Hayes Store, *delegate*.

King William—Dr. A. W. Lewis, Ayletts, *delegate*.

King and Queen—Dr. R. D. Bates, Newtown, *delegate*.

Middlesex—Dr. W. P. Jones, Urbanna, *delegate*.

Essex—Dr. E. L. W. Ferry, Millers Tavern, *delegate*.

York—Dr. L. O. Powell, Seaford, *delegate*.

Mathews—Dr. R. R. Hoskins, Mathews, *delegate*.

NANSEMOND—Dr. J. L. Rawls, Suffolk, *delegate*; Dr. G. R. Joyner, Suffolk, *alternate*.

NELSON—Dr. B. F. Randolph, Arrington, *delegate*; Dr. E. C. Kidd, Lovingsston, *alternate*.

NORFOLK—*Delegates*, Dr. N. G. Wilson, Dr. J. Warren White, Dr. P. St. L. Moncure, and Dr. Julian L. Rawls, all of Norfolk.

PATRICK-HENRY—*Patrick*—Dr. J. T. Shelburne, Critz, *delegate*.

Henry—Dr. J. L. Blanton, Fieldale, *delegate*.

PITTYLVANIA-DANVILLE—Dr. I. C. Harrison, Danville, *delegate*; Dr. P. W. Miles, Danville, *alternate*.

POST-GRADUATE OF SOUTHERN VIRGINIA—*Nottoway*—Dr. J. A. Lowry, Crewe, *delegate*; Dr. C. C. Tucker, Blackstone, *alternate*.

Dinwiddie—Dr. Wright Clarkson, Petersburg, *delegate*; Dr. Geo. H. Reese, Petersburg, *alternate*.

Prince George—Dr. D. L. Elder, Hopewell, *delegate*; Dr. J. M. Bailey, Hopewell, *alternate*.

Greensville—Dr. B. J. Atkinson, N. Emporia, *delegate*; Dr. G. M. Naff, N. Emporia, *alternate*.

Brunswick—Dr. W. C. Harman, Dolphin, *delegate*; Dr. W. H. Lewis, Lawrenceville, *alternate*.

Surry—Dr. J. H. Parker, Dendron, *delegate*; Dr. W. W. Seward, Surry, *alternate*.

Sussex—Dr. Joel Crawford, Yale, *delegate*; Dr. T. M. Raines, Wakefield, *alternate*.

POWHATAN—Dr. R. D. Tucker, Powhatan, *delegate*; Dr. J. E. Tilman, Rock Castle, *alternate*.

RICHMOND ACADEMY OF MEDICINE—*Delegates*—Dr. J. A. Hodges, Dr. Fred Hodges, Dr. C. C. Coleman, Dr. A. M. Willis, Dr. Stuart Michaux, and Dr. L. T. Price, all of Richmond. *Alternates*—Dr. C. M. Miller, Dr. Carrington Williams, Dr. T. D. Jones, Dr. R. F. Gayle, Dr. M. Grove-Hagen, and Dr. W. B. Blanton, all of Richmond.

ROANOKE ACADEMY OF MEDICINE—Dr. T. A. Kirk, Roanoke, and Dr. Everett E. Watson, Salem, *delegates*.

ROCKBRIDGE—Dr. E. P. Tompkins, Lexington, *delegate*; Dr. M. T. Vaden, Buena Vista, *alternate*.

RUSSELL—Dr. S. C. Couch, Cleveland, *delegate*; Dr. T. T. McNeer, Dante, *alternate*.

SOUTHAMPTON—Dr. E. A. deBordenave, Franklin, *delegate*.

SOUTHWESTERN—*Bland*—Dr. A. B. Woolwine, Ceres, *delegate*.

Washington—Dr. F. H. Smith, Abingdon, *delegate*; Dr. W. H. Teeter, Bristol, *alternate*.

Smyth—Dr. Z. V. Sherrill, Marion, *delegate*; Dr. R. E. Hughes, North Holston, *alternate*.

Wythe—Dr. J. M. Miller, Wytheville, *delegate*; Dr. E. M. Chitwood, Wytheville, *alternate*.

Carroll—Dr. R. R. Goad, Hillsville, *delegate*; Dr. C. B. Nuckolls, Hillsville, *alternate*.

Grayson—Dr. W. P. Davis, Galax, *delegate*; Dr. J. K. Caldwell, Galax, *alternate*.

Pulaski—Dr. R. H. Woolling, Pulaski, *delegate*; Dr. R. F. Thornhill, Pulaski, *alternate*.

Montgomery—Dr. M. B. Linkous, Blacksburg, *delegate*; Dr. J. A. Noblin, Radford, *alternate*.

Giles—Dr. W. C. Caudill, Pearisburg, *delegate*; Dr. K. D. Graves, Pearisburg, *alternate*.

WARREN-RAPPAHANNOCK-PAGE—*Warren*—Dr. L. F. Hansbrough, Front Royal, *delegate*; Dr. Giles Cook, Front Royal, *alternate*.

Rappahannock—Dr. E. R. Browning, Flint Hill, *delegate*; Dr. Jas. G. Brown, Woodville, *alternate*.

Page—Dr. Geo. H. Long, Luray, *delegate*; Dr. B. C. Shuler, Shenandoah, *alternate*.

The Virginia Pediatric Society

Will hold its annual meeting Wednesday, October 19, 1927, at 1 P. M. at a luncheon at Petersburg Hotel, during the meeting of the Medical Society of Virginia in that city. This

will be a subscription luncheon and all doctors especially interested in pediatrics, whether members of the Pediatric Society or not, are invited. There will be a kind of Round Table discussion, which will be participated in by Drs. Franklin D. Wilson, of Norfolk, St. Geo. T. Grinnan, of Richmond, and L. T. Royster, of University.

On this day, there will also be several pediatric papers presented before the Medical Society of Virginia and all pediatricians are urged to attend. Dr. N. T. Ennett, Richmond, is president of the Pediatric Society; Dr. L. T. Royster, University, vice-president; and Dr. W. B. McIlwaine, Petersburg, secretary-treasurer.

The Southwestern Virginia Medical Society

Held a well attended meeting in Bristol, Va., September 22nd and 23rd, under the presidency of Dr. Z. V. Sherrill, of Marion. Following the subscription banquet on the first evening, the program was taken up and an interesting one was put over. The symposium at this meeting was on "Pulmonary Tuberculosis". It was decided to hold the next meeting at Marion, Va., March 29th and 30th, 1928. Dr. J. L. Early, of Radford, was elected president, Dr. D. M. Sanders, of Chilhowie, vice-president, and Dr. E. G. Gill, of Roanoke, was re-elected secretary-treasurer. Delegates were also elected to the Petersburg meeting of the State Society.

The Fairfax County Medical Society,

At its meeting held at Herndon, August 4th, elected the following officers for the ensuing year: President, Dr. Wm. Meyer, Herndon; secretary, Dr. W. P. Caton, Accotink, and treasurer, Dr. F. M. Brooks, Fairfax, both of the latter being re-elected. Delegate and alternate to the State Society meeting were also elected.

The Post-Graduate Medical Society of Southern Virginia

Was organized at a meeting in Petersburg, September 12th. This is composed of the counties of Nottoway, Dinwiddie, Prince George, Greensville, Brunswick, Surry and Sussex. Dr. Wright Clarkson, president of the Southside Virginia Medical Association, was the moving factor in the organization of this society, which has already secured a charter from the State Society and elected delegates and alternates for the Petersburg meeting.

Officers of the new organization are: President, Dr. E. W. Young, Petersburg; vice-presidents, Dr. S. E. Gunn, Hopewell, and Dr. B. J. Atkinson, Emporia; and secretary-treasurer, Dr. W. C. Powell, of Petersburg. The following compose the Judiciary Committee: Dr. W. D. Prince, Stony Creek, chairman, and Drs. W. W. Bennett, Blackstone, and D. C. Mayes, Church Road. Dr. F. N. Mallory, Lawrenceville, is chairman of the committee on public health and legislation, other members of this committee being Drs. W. W. Seward, Surry, and M. H. Tredwell, Emporia.

The Society will hold seven meetings a year—one in each of its seven counties. The next meeting will be held in Surry on the second Tuesday in November.

A special feature of this society is its "Steering" committee of which Dr. Wright Clarkson, Petersburg, is chairman. The committee will be composed of all members who apply in writing to the chairman on or before the first of each fiscal year. Failure of a member to attend at least six meetings a year, without sending a good written excuse to the chairman, will automatically bar one from being a member during the following year. This committee will have charge of arranging the programs. It is planned that the first half of each meeting will be "journal hour" and will be in control of members residing in the county in which the meeting is being held.

Rockingham County Medical Society.

Rockingham County doctors have re-organized their society. Dr. Noland M. Canter, has been elected president; Dr. J. E. Wine, vice-president; and Dr. Howard Armstrong, secretary-treasurer. All officers are of Harrisonburg, Va.

The Medical Association of the Valley of Virginia

Held its regular semi-annual meeting in Winchester, September the 29th, under the presidency of Dr. A. F. Robertson, Jr., of Staunton. About forty physicians were in attendance. A number of interesting papers were read, the feature paper being one on "Conditions That Simulate Pneumonia" by Dr. E. J. G. Beardsley, of Philadelphia. Discussion on this paper was opened by Dr. Kenneth Bradford, of Staunton. Dr. Charles O. Dearmont, White Post, was elected president for the ensuing year. Other officers are:

vice-presidents, Drs. L. M. Allen, of Winchester; H. G. Middlekauff, of Weyers Cave; and Dr. J. A. Riffe, of Covington. Dr. L. F. Hansbrough, Front Royal, was elected treasurer, and Dr. Allen T. Hawthorne, Winchester, secretary. The Spring session will be held in Harrisonburg, in May, 1928.

Dr. Joseph Caplan,

Of the University of Virginia, class of '25, after two years in Baltimore hospitals, sailed October the 1st, on the Steamship Minnesota for Europe, where he will do post-graduate work in diseases of the ear, nose and throat in Vienna and in other clinics.

Married.

Dr. Cornelius B. Courtney, Newport News, Va., and Miss Genevieve Dellinger, of Lincoln, N. C., September 14.

Dr. Joshua Milburn Dougherty, Jr., Gate City, Va., of the class of '25, Medical College of Virginia, and Miss Alma M. Turner, Mineral, Va., September 5.

Dr. Palmer A. Shelburne, now stationed at the Marine Hospital, Baltimore, Md., and Miss Ruth Elfreth Friend, Drakes Branch, Va., August 27. Dr. Shelburne was graduated from the Medical College of Virginia, last June.

Dr. Robert Edward Feagans, of the class of '25, University of Virginia, Department of Medicine, now assistant house surgeon at the University Hospital, and Miss Lois Straley, Lynchburg, Va., September 10.

Dr. Maurice Matthew Lynch, Jr., Hackensack, N. J., and Miss Theresa Murphy, Montclair, N. J., October 1. Dr. Lynch graduated from Medical College of Virginia in 1925, following which he accepted an internship at Holy Name Hospital, Taeneck, N. J.

Dr. Glynne Brown, Texarkana, Ark., of the class of '25, University of Virginia, and Miss Evelyn Calvert Via., Orange, Va., September 24.

The Mid-Tidewater Medical Society,

Composed of the seven counties in the peninsula between the York and Rappahannock Rivers, will hold its next meeting in West Point, Va., at the Community House, on October the 26th, at 10 A. M. A large attendance is requested. Dr. James W. Smith, of Hayes Store, is president, and Dr. Malcolm H. Harris, of West Point, secretary.

Dr. Hunter Williams

Is re-building his home at North Garden, Va., near the site of the one he lost by fire a little over a year ago.

Dr. Thomas B. Washington,

Of Richmond, left the middle of September for New York City, where he will spend the next six months taking a post-graduate course in urology at the New York Polyclinic Hospital.

Dr. P. K. Graybill,

Of Fincastle, Va., now living in Arizona, has returned to Cactus, Arizona, after spending the past year at Lake Pleasant, that state, where he had charge of the emergency medical work in connection with the building of a big dam to store flood waters for irrigation of forty thousand acres of desert land.

Doctors Interested in American Legion.

Drs. E. J. Nixon, L. S. Early and W. A. Reese, of Petersburg, Va., have been elected members of the executive committee of the American Legion, Post No. 1, of that city, for the ensuing year.

Appointed Chief Surgeon of Norfolk and Western Railway.

Dr. W. R. Whitman, Roanoke, Va., has been appointed chief surgeon of the Norfolk and Western Railway, succeeding Dr. Sparrell S. Gale, deceased.

Dr. H. Taylor Hawkins,

Clover, Va., was appointed by Adjutant General Sale as delegate from the Virginia National Guard to the Association of Military Surgeons, which was to be in Carlisle, Pa., October 6-8.

Dr. R. Cannon Eley,

Of the class of '25, University of Virginia, Department of Medicine, after several months at the Willard Parker Hospital, New York City, has gone to Boston, where he will be connected with the Children's Hospital, for the next fifteen months.

Southern Medical Association.

Officers of the Association and members of the local committee on entertainment are making plans for a "big" meeting in Memphis, November 14-17, under the presidency of Dr. J. Shelton Horsley, of Richmond. Memphis has one of the most modern convention auditoriums in the South and the greater part of the Association's activities can be held under the one roof. Two days will be devoted to clinical sessions and two to section meetings. Every Southern physician who is a member of his

State organization is eligible to membership in the Southern Medical. Mr. C. P. Loran, Empire Building, Birmingham, Ala., is secretary-manager of the Association.

The Southern Association of Anesthetists

Will hold its sixth annual meeting at the Claridge Hotel, Memphis, Tenn., November 14th and 15th.

This organization meets annually in conjunction with the Southern Medical Association. Its objects are: to advance the science and art of anesthesia; to stimulate interest in all forms of anesthesia and analgesia—general, regional and local; to advance and improve the status of anesthesia administration as a well defined specialty; and to offer and provide a Forum for the presentation and discussion by all interested, of phases and problems of anesthesia which surgeons, obstetricians and anesthetists constantly encounter.

The Southern Association of Anesthetists is a regional unit of the Associated Anesthetists of the United States and Canada. Others serving various geographical sections are the Eastern, Mid-Western, Pacific Coast and Canadian Societies of Anesthetists. The parent body, the Associated Anesthetists of the United States and Canada, under the enthusiastic and brilliant leadership of the Secretary-General, Dr. F. H. McMechan, of Ohio, has wielded an influence for better, safer, more scientific anesthesia that can hardly be overestimated. Dr. C. Wm. Hoefflich, Houston, Texas, is president of the Southern branch.

An exceedingly interesting program has been arranged for the Memphis meeting. Any one interested should communicate with W. Hamilton Long, M. D., Secretary, Francis Bldg., Louisville, Ky.

Red Cross Membership as a Link With Active Days of War Service.

November 11, 1918—November 11, 1927; nearly ten years. The past year thoughtful people everywhere have meditated on the fact this is the tenth anniversary of America's entry into the World War, that the coming year will be the tenth since we emerged from that conflict to shift our frenzied war activities into the more measured pace of normal life. There are few material links connecting us with those days. The vast uniformed forces which were camped everywhere have merged into the personnel of shop and office, coming and going with the rest of their fellows. Only one group

of that army still stands apart; they are the disabled.

There are still other reminders of war days; the special occasions when the American Legion parades, and the Annual Roll Calls of Red Cross Membership, which have taken place each year from Armistice Day to Thanksgiving, since the war. Not everyone can belong to the American Legion; that privilege is reserved for those who served in the uniformed ranks of the Nation in war. But there is one service which is universal, one through which the great majority of the American people in war time rendered one of their obligations to the country and to their sons; through membership in the American Red Cross. Many of its war-time members have never permitted themselves to be demobilized from that service. For many thousands of others each year, the Roll Call,—which this year is from November 11-24—is an opportunity to identify themselves once more with an organization of humanitarian helpfulness to the whole world, and the demand for whose services is as strong each year as it was ten years ago.

The Association of American Medical Colleges,

Meeting in Montreal, Canada, October 24, 25 and 26, will have on an excellent scientific program. Headquarters will be at the Mount Royal Hotel and the meetings will be held in the Anatomy Building of McGill University. The afternoons and evenings will be given over to sight seeing and entertainments.

Dr. James W. Smith

Recently returned to his home at Hayes Store, Virginia, after spending his vacation visiting in New York and Canada.

Dr. W. Randolph Graham,

Of the class of '25, Medical College of Virginia, has located in Richmond, where he will be associated with Dr. Warren T. Vaughan in the practice of gastroenterology. Dr. Graham has been associate in medicine at the Peter Bent Brigham Hospital, Boston, and assistant in medicine at the Harvard Medical School.

New Activities of the National Children's Bureau, Peru.

Among the new undertakings of the Children's Bureau of Peru during 1926, according to the annual report of the bureau for that year, were the opening of public squares for children's playgrounds and efforts to prevent

begging by children in the streets. The bureau has also been advocating the opening of nurseries in connection with hospitals, for children whose mothers are receiving hospital care. Other activities of the bureau include studies of medical and social problems, legal aid to mothers, health centers for infants, summer camps for children, and the preparation of modified milk for distribution. The bureau also gives financial aid to private child-caring agencies.

Dr. and Mrs. James D. Clements,

Of Ordinary, Va., spent their summer vacation at Virginia Beach.

Dr. C. L. Woodbridge,

Recently returned from the missionary field in China, after spending the summer at Montreat, N. C., has located at Montgomery, W. Va., instead of Pulaski, Va., as he at first planned.

Medical Officers Wanted for Veteran's Bureau Hospitals.

Applications for junior medical officer (interns) will be rated as received by the Civil Service Commission, Washington, D. C., until December 30, 1927. This examination is to fill vacancies in Veterans' Bureau Hospitals throughout the United States and vacancies in positions requiring similar qualifications. Full information may be obtained from the U. S. Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. Civil Service Examiners, at the post office or custom house in any city.

Prizes for Essay in the Cause of the Family Doctors.

Realizing that the "family doctor" does not have the influence or the income which he should, a prominent doctor of North Carolina has provided the funds for three prizes—one each of \$250, \$150 and \$100—to be awarded for the best essays on "HOW THE FAMILY DOCTOR CAN BEST INCREASE HIS USEFULNESS AND HIS INCOME." It is stated that this contest is open to all regular doctors in Virginia, North and South Carolina, and it is urged that they write essays on this subject. The award will be decided by a committee of doctors from the three states.

Southern Medicine and Surgery, Charlotte, N. C., through which this prize is offered, will have the privilege of publishing any of the essays in the interest of doctors in general.

Essays have to be submitted to *Southern Medicine and Surgery* before December 1, 1927.

It is hoped that Virginia doctors will take advantage of this offer to submit their views on this subject which should be of great interest.

Dr. and Mrs. H. A. Tabb,

Gloucester, Va., returned home the middle of September from a motor trip through Pennsylvania and thence via Washington, D. C., through the Valley of Virginia.

Dr. W. H. Batte, Jr.,

Formerly of Jarratt, Va., is now connected with the medical department of the Norfolk and Western Railway Company, at Bluefield, West Virginia.

Dr. J. Blair Fitts,

Richmond, Va., announces removal of his offices to 917 West Franklin Street, this city.

The Southside Virginia Medical Association

Held its quarterly meeting in Richmond, September 13th, as guests of the McGuire Clinic. There was a symposium on "The Medical and Surgical Aspects of Abdominal Pain" in addition to a number of other interesting papers. Immediately following the scientific program those in attendance adjourned to the country home of Dr. Stuart McGuire, where they were entertained at dinner. Dr. Wright Clarkson, Petersburg, is president, and Dr. R. L. Raiford, Franklin, secretary of this Association.

Public Playgrounds in Baltimore.

In Baltimore this summer the Playground Athletic League has been operating 134 playgrounds and 6 swimming pools under trained leadership and supervision. The regular daily schedule of each playground varied, and once during the summer all the playgrounds took part in a big play festival held at the stadium. On August 11, the date set for the festival this year, about 3,000 children were brought together for a demonstration of games and dances. During the last week of August each playground had special programs for visitors. Twenty of the playgrounds have conducted baby days this season, when children under three years of age were examined by doctors and nurses.

Medical College of Virginia Alumni Banquet.

The Alumni Association of the Medical College of Virginia will have a banquet and a

general Jollification Get-Together meeting at the Petersburg Hotel, Petersburg, Va., during the meeting of the Medical Society of Virginia. Banquet will take place at 6:30 P. M. October 19th. The General Chairman of this Committee is Dr. Everett E. Watson, Salem, Va. The Petersburg Committee consists of Drs. Geo. Reese and John Harwood. Dr. Roshier W. Miller, President of the Alumni Association and Dr. Howard Urbach, President of the Richmond Chapter, have charge of the program.

General "roust-about" and "boosters" are: Drs. Greer Baughman, R. D. Garcin, Clyde F. Ross, Arthur S. Brinkley, F. H. Beadles, H. W. Decker, Chas. Phillips, and Thomas D. Jones.

Get your tickets early. There will be plenty of fun, no long speeches, and positively no solicitations for funds.

COME ONE. COME ALL. Let your lights be shining. Except for the muddy Appomatox River, Petersburg is dry.

Dr. B. S. Yancey,

Who was stationed at the Marine Hospital, Baltimore, Md., as an assistant surgeon (R) in the U. S. Public Health Service, following his graduation from the University of Virginia in 1926, has been appointed health officer at Chase City, Va., where he will do general practice in connection with his other duties.

Dr. I. R. Wagner

Has been transferred from the Edw. J. Hines, Jr. Hospital, at Maywood, Ill., to the U. S. Veterans' Hospital, Jefferson Barrocks, Mo.

Dr. Claude Moore,

Roanoke, Va., who went abroad with the American Legionnaires, is visiting clinics in Berlin and Vienna before returning home.

Dr. Bittle C. Keister,

Washington, D. C., announces that he has just returned from the University of Minnesota and the Mayo Clinic, where he did research work in general medicine and surgery and has resumed his practice, with offices at 1315 Fern Street, Northwest.

Dr. Israel Brown,

Norfolk, Va., was elected president of the Virginia Department of the American Legion, at its meeting in Newport News, early this month. He was one of the Virginia members

who attended the national gathering of the Legion in Paris last month.

The Association of Surgeons of the Chesapeake and Ohio Railway

Held its annual meeting at Virginia Beach, early in September, with an attendance of more than four hundred surgeons and members of their families. Dr. J. E. Cannaday, Charleston, W. Va., was the presiding officer. Following the scientific program, a business session was held and Dr. Wm. T. Graham, Richmond, Va., was elected president; Dr. Chas. C. Garr, Lexington, Ky., first vice-president, and Mr. G. E. Meanley, Richmond, Va., was re-elected secretary.

Dr. Henry L. Townsend,

Who recently completed an internship at Memorial Hospital, Richmond, has located at Marshall, Va. Dr. Townsend was a member of the class of '26, Medical College of Virginia.

Dr. A. W. Kelly,

Of the class of '26, Medical College of Virginia, upon completion of his internship at Mercy Hospital, Baltimore, Md., has located at 1412 Light Street, Baltimore, where he will be engaged in general practice.

Dr. H. B. Mulholland,

University, Va., left about the first of September for a year's study abroad.

Doctor's Son Loses Sight of Eye.

Holland Robinson, fifteen year old son of Dr. and Mrs. Julian Robinson, of Danville, Va., had the misfortune to lose sight in his right eye as result of an accident at school. He had called to another boy on a porch above him at school to throw him a broom. It was dark and the handle of the broom, falling first, struck young Robinson in the right eye, rupturing the eyeball.

News of Medical College of Virginia.

The central school of nursing at the Medical College of Virginia, Richmond, has matriculated in its preliminary or preclinical course in the basic sciences which covers one semester fifty students from four of the hospitals of Richmond in addition to fifty-six students who are residents in college and students in its school of nursing. This is the second year the central school has been in operation; students are expected to meet college entrance requirements.

Construction work has begun on the new dormitory at the Medical College of Virginia, Richmond, which will accommodate 134 young women, chiefly of the school of nursing. There will be four dormitory floors, each with an ample sun porch. On two additional floors dining room, social, and recreational, and certain teaching facilities will be provided.

In the school of dentistry of the Medical College of Virginia, Richmond, a new course for dental assistants has been inaugurated this year. Applicants for admission must meet college entrance requirements and spend one year in residence. This course is designed to equip young women to assist the dentist in usual office and certain laboratory routine. It is not a course for dental hygienists.

New appointments at the Medical College of Virginia, Richmond, for the current session are: Dr. Sidney S. Negus, professor of chemistry; Dr. J. Garnett Nelson, professor of clinical medicine; Dr. William B. Porter, professor of medicine; Dr. Lewis C. Pusch, associate in pathology; Dr. J. E. Daugherty, instructor in medicine; Dr. W. A. McGee, instructor in pediatrics; Dr. Randolph E. Anderson, assistant in surgery; Dr. R. B. Easley, assistant in neurological surgery; Dr. G. H. Snead, assistant in otolaryngology; Dr. T. B. Washington, assistant in surgery; Dr. W. B. Massey, assistant professor of pedonontia; Miss Altha Cunningham, associate in art; Mr. J. G. Jantz, associate in anatomy; Dr. W. Tyler Haynes, assistant in dental technics; Dr. J. R. Fleet, assistant in operative dentistry; Dr. R. A. Williams, assistant in prosthetic dentistry; Miss Grace Goodchild, R. N., nurse; Dr. J. G. Forbes, assistant professor of chemistry; Professor Haynie H. Seay, Jr., instructor in economics and citizenship; Dr. W. P. Barnes, instructor in surgical diseases; and Dr. J. W. Keever, instructor in elementary physiology.

Promotions for 1927-28 include: Dr. Paul V. Anderson to associate professor of nervous and mental diseases; Dr. W. A. Shepherd to associate professor of medicine; Dr. James H. Smith to associate professor of medicine; Dr. J. M. Whitfield to associate professor of medical jurisprudence, ethics, and economics; Dr. Pauline Williams to associate professor pathology; Mr. Clifford W. Skinner to assistant professor of anatomy; Dr. H. DeJ. Coghill to associate in nervous and mental diseases; Dr. R. H. Courtney to associate in ophthalmology;

Dr. O. B. Darden to associate in nervous and mental diseases; Dr. G. H. Preston to associate in nervous and mental diseases; Dr. L. W. Whitehead to associate in roentgenology; Dr. D. G. Chapman to instructor in medicine; Dr. C. A. Folkes to associate in ophthalmology; Dr. N. H. Turner to associate in ophthalmology; Dr. M. B. Rudd to associate professor of prosthetic dentistry.

Dr. William B. Porter,

Whole-time professor of medicine at the Medical College of Virginia, has entered upon his duties with offices in the Memorial Hospital. He will give certain time during the day to private consultation work.

University of Nebraska Offers Courses in Child Development.

The home-economics department of the University of Nebraska, during the summer sessions of 1924 and 1925, offered courses in child development with a nursery school as a laboratory for student observation. These courses were introduced in order to meet a need of Nebraska home-economics teachers. During the school year 1926-27 the work was made a part of the regular curriculum, with the classes and laboratory open to junior and senior home-economic students and others who were interested. The nursery school had an enrollment of twelve children, and the city health department co-operated by giving the services of one of its visiting nurses for health inspection each morning, and a group of pediatricians in Lincoln gave each child a complete physical examination twice during the year. The division of nutrition of the home-economics department of the university is conducting physical-growth and nutrition studies, and the department of educational psychology directs the mental testing.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons

Held its annual meeting at Asheville, N. C., September 15-17, inclusive, under the presidency of Dr. John Osborn Polak, of Brooklyn, N. Y. Virginia members in attendance were Dr. L. A. Calkins, University, and Drs. M. P. Rucker and James M. Whitfield, Jr., of Richmond. Dr. Palmer Findley, of Omaha, Nebr., was elected president for the coming year, and Dr. James E. Davis, of Detroit, Mich., was re-elected secretary. It was voted to hold the next meeting in Toronto, Canada, in September, 1928.

Dr. and Mrs. Herbert W. Lewis

And daughter, of Dumbarton, Va., spent their vacation in September at Afton, Va., and on a trip through the Valley of Virginia and West Virginia.

Dr. C. O. Foree,

Formerly of Pocahontas, Va.; has moved to Athens, Tenn.

Dr. C. W. Trexler,

Of the class of '26, University of Virginia. Department of Medicine, following a service as house physician at French Hospital, San Francisco, Cal., has located in San Diego, Cal. He is associated with Drs. Wegeforth, with offices in Granger Building, and his work will be mainly surgical.

Dr. F. F. Davis,

Sassafras, Va., recently returned from his vacation which was spent in Pennsylvania.

New Step In International Relations of Physicians.

The cordial relations of the physicians of America, North and South, and their colleagues of the Old World were further expressed by the appointment of American representatives to the editorial cabinet of the *Acta Dermato-Venereologica* published under the direction of Dr. Johan Almkvist, of Stockholm, Sweden. The nominees are: Howard Morrow, of San Francisco, Howard Fox, of New York, J. B. Shelmire, of Dallas, D. R. Smith, of Toronto, Pardo Castello, of Havana, and Herman Goodman, of New York.

The *Acta Dermato-Venereologica* publishes original contributions in French, German, or English within the fields of dermatology, urology, and social hygiene, and items of interest of persons or progress in these specialties.

American literary contributions should be addressed to Dr. Herman Goodman, 18 East 89th Street, New York City.

"Belroi" to be Opened.

The Walter Reed Commission of the Medical Society of Virginia announces that "Belroi", the birthplace of Dr. Walter Reed, in Gloucester County, Virginia, has been renovated and will be formally opened to the public on Saturday afternoon, October the 15th, at 2 P. M. A most attractive program will include speeches and music by one of the U. S. Army bands from Ft. Eustis.

Dr. James H. Hargrave, Jr.,

Petersburg, Va., was painfully hurt about

the middle of September, by the explosion of gasoline on a yacht at the Hummell Ross dock, that city. Dr. Hargrave was blown through the top of the yacht and it is almost miraculous that he was not seriously as well as painfully hurt.

The American Board of Otolaryngology

Will hold an examination in Memphis, Tenn., November 14, 1927—the first day of the Southern Medical Association meeting. As the Board seldom meets in the South, this will be an excellent opportunity for those from this section who may wish to take the examination. The certificate of this Board is stated to be the most valuable of its kind in the world and is certainly the most valuable certificate that any Ear, Nose and Throat man in America possesses.

All applications and communications concerning this examination should be addressed to Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska.

Dr. H. L. Burwell,

For many years a practicing physician at Chase City, Va., has moved to Roanoke, Va.

The American Public Health Association

Is to hold its annual meeting in Cincinnati, Ohio, October 17-21, with headquarters at Hotel Gibson. Any health worker is eligible to membership in this organization. In addition to the usual attractive scientific program, pleasant entertainment is being arranged for the visitors. Mr. Homer N. Culver, 370 Seventh Avenue, New York City, is executive secretary of the Association.

Census of Institutions.

The U. S. Department of Commerce has just made public a preliminary announcement of the results of the census of state and federal institutions for the feeble-minded and epileptics, hospitals for mental disease, and prisons and reformatories. Returns from thirty-six states on institutions for the feeble-minded and epileptics, covering sixty institutions, shows an increase of 8.6 per cent of first admissions over reports in 1922; reports from thirty states covering 105 hospitals for mental disease show an increase of 7.5 per cent over 1922; and returns from thirty-one states covering fifty-eight prisons and reformatories show an increase of 28.3 per cent on 1922 figures. In each case, the first admissions per 100,000 population have increased more rapidly than the

general population, though this increase may be largely attributable to an expansion of the capacity or facilities of the institutions in some states and the effectiveness of local machinery in bringing these cases under the care of institutions.

Dr. I. K. Briggs

Has returned to his home in South Boston, Va., after a visit to clinics in Chicago and Rochester, Minn.

Dr. Lewis A. Law,

Upon completion of his internship at George Ben Johnson Memorial Hospital, Abingdon, Va., has located in Alberta, Va., for the practice of medicine.

Dr. and Mrs. E. J. Nixon,

Petersburg, Va., suffered quite painful injuries and narrowly escaped death, on September the 30th, when their automobile was struck by another on the Petersburg Turnpike. Their conditions were reported as favorable as we go to press.

Wanted—

A physician for a good country practice. If interested communicate with Zannie B. Givens, Newport, Va., R. F. D. 1, Box. 69. (*Adv.*)

Obituary

Dr. Frank Stanley Hope,

Prominent physician of Portsmouth, Va., died in that city, September 26th, following an operation. He was seventy-two years of age. Dr. Hope was graduated in medicine from the University of Virginia in 1876, shortly after which he commenced practicing in Portsmouth. He was in active practice to the time of his last illness and in addition was active in community welfare work and in politics. He served a term as mayor of Portsmouth, for several terms as health officer of that city during which time he was also a member of the former State Board of Quarantine Commissioners which had much to do with quarantine regulations over the port of Hampton Roads, and served a number of years on the Central State Democratic Committee as a member from the Second District. Dr. Hope had been a member of the Medical Society of Virginia since 1880, was a member of the Norfolk County Medical Society, was a Mason and a member of a number of fraternal and civic organizations. His wife and a daughter survive him.

Dr. Wade Hampton Saunders,

Roanoke, Va., died at his home in that city, September 19th, death being due to heart trouble. Dr. Saunders was born in Bedford County, Virginia, fifty years ago and upon completion of his academic education, studied medicine at the former University College of Medicine, Richmond, from which he graduated in 1903. He had been an active member of the Medical Society of Virginia since that same year. His burial was conducted with Masonic orders. His wife survives him.

Dr. John Wesley Bovee,

Washington, D. C., honorary member of the Medical Society of Virginia, died September 3rd, as the result of injuries received from a fall. He was a native of New York State and was sixty-five years of age. Dr. Bovee graduated in medicine from the Medical Department of Columbian University, Washington, in 1885, after which he located in that city. He was emeritus professor of gynecology in George Washington University Medical School; a member and ex-president of the Medical and Surgical Society of the District of Columbia, the American Gynecological Association, and the Southern Surgical Association, and a member of numerous other medical organizations. He was for many years gynecologist to several of the Washington hospitals.

Dr. Charles William Massie,

Richmond, Va., for over thirty years a practicing physician in this city, died September 26th, after being in bad health for about three years, though he kept up active practice until a year ago. He was a native of Amherst County, Va., and seventy-one years of age. His medical education was received at the University of the City of New York, from which he graduated in 1880. He was at one time a member of the Medical Society of Virginia. His wife and several children survive him.

Dr. John R. Atwell,

Wicomico Church, Va., formerly a member of the Medical Society of Virginia, died in a Washington hospital, September 13, at the age of fifty-three years. He was a native of Washington and graduated in medicine from the National (now George Washington) University, that city, in 1898.

Dr. Richard Fishburne,

For over forty years a practicing physician in Leesburg, Va., died in Staunton, Va., Sep-

tember 14, at the age of seventy-six years. He took his degree in medicine from the Kentucky School of Medicine in 1876 and was at one time a member of the Medical Society of Virginia. He is survived by daughter who is now a missionary in Japan.

Resolutions on the death of Dr. Charles Venable Carrington.

Dr. Charles Venable Carrington was born in Charlotte County, Virginia, July 29, 1866. He taught school for several years at Chatham in order to earn money to attend the University of Virginia. While at the University he was secretary to his uncle, the late Colonel Charles S. Venable, professor of mathematics. He graduated in medicine at the University of Virginia in 1889, and became an interne at the old St. Luke's Hospital, Richmond, Virginia, under the late Dr. Hunter McGuire.

He married Mrs. Grant, a widow, who was Miss Avis Walker. The union was ideal, and he cared for her with the tenderest affection throughout his life.

He was physician to the Spring Street Home for twenty years, and for twelve years was surgeon to the State Penitentiary, being appointed by Governor J. Hoge Tyler. He was surgeon to the Richmond Street Railway Company for many years, and his fearless and courageous conduct during the troublesome times of the strike, about twenty-five years ago, was widely noticed. He was surgeon to the Richmond Fire Department when he died. He was an ex-president of the Richmond Academy of Medicine and Surgery.

His health for the last few years had appeared to be good. He died after a few hours' illness at seven o'clock in the morning of July 22nd, apparently from angina pectoris.

Dr. Carrington was the particular champion of the down-trodden and the oppressed. A sense of injustice always brought forth the strongest reaction from him. His generosity was complete. He was under all conditions willing to share everything he had with his friends, and he seemed to think as a matter of course that others would do the same thing with him.

Siding with the "under-dog" was his natural instinct. His work at the Spring Street Home, and as surgeon for the Penitentiary, are instances of this trait of character. He was the chief factor in mitigating much of the harsh treatment of the inmates of the Penitentiary while he was surgeon there. He was a pioneer in the advocacy of sterilization of the habitual criminal, a policy which has been adopted by several states and carried out with apparent benefit by the State of California. This contribution to sociology is just beginning to be appreciated.

In his big heart there was no place for sham or hypocrisy. The love of his fellowman crowded out these small vices.

BE IT RESOLVED, THEREFORE, that the Richmond Academy of Medicine wishes to express a deep sense of loss in the death of a faithful fellow and ex-president, Dr. Charles Venable Carrington, and to extend its sincere and heartfelt sympathy to his widow and the rest of his surviving family.

ROBERT C. BRYAN,
THOMAS W. MURRELL,
J. SHELTON HORSLEY, *Chairman.*
Obituary Committee.

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THE MEDICAL PROFESSION OF VIRGINIA.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

A history of the medical profession of Virginia would be profoundly interesting. The presidential address of Dr. W. L. Harris at the Norfolk meeting of this society last year on "John Peter Mettauer, A. M., M. D., L.L.D., A Country Surgeon", shows the attractive material that exists in Virginia for biographical essays on medical men. In a presidential address, which should be short, there is hardly time even briefly to sketch all of these interesting lives, so the temptation to speak of them must be resisted; for what now deeply concerns us are the problems of the present and of the immediate future.

COMMERCIALISM IN MEDICINE

Times are changing. The intensely personal relationship which has existed between doctor and patient is waning. Many of the older conditions and customs are passing and new things are appearing. Whether we approve or not we cannot ignore this situation, and we must meet it as best we can. It is expected of us that we shall not fail in this trust: that we shall hold untarnished above all changes the real purpose of the medical profession,—that is, the conquest of suffering and disease and the saving and prolongation of human life. So long as this ideal is in the forefront and so long as doctors keep other things secondary or subsidiary, no real harm can come to the medical profession. But other things press closely. It is necessary for the doctor to have food to eat and clothing to wear, to educate his children and to maintain a certain standard of respectable living. The practice of medicine must pay at least a living wage; for the vast majority of medical men, whether specialists or general practitioners, are dependent upon their practice for the maintenance of themselves and their families. And are they not entitled to a living wage? The

objects of their calling command the admiration and the respect of everyone and it is certainly no more discreditable to be rewarded for curing a case of diphtheria or for saving a patient with gangrenous appendicitis than it is to be paid for winning a lawsuit over disputed property or for managing an industrial plant, and yet there is a very vital difference of responsibility when a human life is directly concerned.

While the physician should, of course, look after his business affairs in an orderly way, and while the laborer is worthy of his hire, when the commercial situation begins to dominate a doctor's life instead of being secondary, there sets in a waning of the professional spirit and a tendency to convert the profession of medicine into a trade. There are many who feel that changes in the direction of commerce are not real progress,—that the patronizing attitude of some pharmaceutical houses informing the physician as to the method of treatment he should adopt, and the condescending manner of some of the captains of industry are not to our credit.

Surely, medicine is a noble profession, but the constant dingling of this in our ears by well-meaning admirers, though pleasing to our vanity, is not helpful to our character-building. Doctors of medicine, like other aggregations of human beings, are subject to many frailties. It is a wholesome, even though sometimes a disagreeable, experience to take stock of ourselves occasionally and see if there are not within us faults that may be corrected or some unworthy attitude that may be altered.

THE FRATERNITY OF MEDICINE

The profession of medicine should be like a kind of religion, and each member should have a fraternal spirit. When the newspapers mention a doctor who has committed murder or is guilty of a high crime, every right-thinking medical man feels somewhat the disgrace. The misconduct of every member reflects directly or indirectly upon the whole medical profession. It particularly behooves us, then,

*Presidential address before the fifty-eighth annual meeting of the Medical Society of Virginia, Petersburg, Virginia, October 18, 1927.

to examine ourselves wherein we may have sinned and to correct if possible our errors.

Since the World War the temptations for doctors have been peculiarly abundant. The pressure to break laws, to make short-cuts to success, to take undue advantage of certain forms of publicity, has never been greater. If, then, a larger proportion of the younger doctors have fallen by the wayside than happened in the early career of those of us who are older, it may not necessarily be due to a weakening of character but to more abundant temptation. When temptations come, however, it is all the more important to steel ourselves against them. We have no right to ask the Legislature or the public for consideration unless we really deserve it. The man who is dishonest and untrustworthy, even though he be a doctor, should not demand any respect because of his profession. As Dr. George C. Davis says: "We cannot expect an immoral man to become a moral physician. Medicine opens a wide field to the man without conscience. Is there a picture of more abject depravity than the physician given to the many forms of illicit practice, aiding and abetting crime, actually committing crime, preying on the afflicted in body and soul, capitalizing misfortune itself?"

The rules of honest conduct and of good citizenship are exceedingly simple. They are comprised in the Golden Rule, and in the magnificent verse of Micah that the only requirements of the Lord are that we "do justly, love mercy and walk humbly". The difficulty is not in finding these rules, but in following them. The relation of the doctor to the patient requires no complicated ritual if he has the right spirit. It is the same as the traditional policy of the captain of a vessel or of the engineer or conductor of a railway train toward his passengers: the safety and welfare of the passengers is always supreme. The health of the patient should always be the chief consideration and duty of the medical man. When rules of ethics about matters of professional etiquette are stretched in any way to the detriment of the patient, it is a misinterpretation of the real spirit of medical ethics. Ethics in medicine merely means being a gentleman and following the proper dictates of right living and good citizenship.

The medical profession can be no better than its individual members. It is impossible for a doctor to besmirch his own private character

without lowering the profession which he represents. The old tradition of the doctor being a leader for morals and good citizenship in his community cannot continue unless he literally practices what he preaches. There are many things that appear insignificant at first and yet tend to undermine character instead of strengthening it. Yielding to temptations that beset the medical profession is one of the causes of degeneration of character.

SHALL A DOCTOR TELL THE TRUTH?

There are other things which the public associates with the medical profession that are not helpful in character-building. If we were to select the most important of the fundamental virtues, it would probably be truthfulness. Not only the academic love of truth, but the practical application of it in daily life, is the mainspring of a desirable character. It is a public opinion that doctors and their associate nurses are not truthful to their patients. This seems to be viewed to some extent with casual amusement, but at the bottom is it not true that such amusement breeds disrespect? In a recent issue of *Harper's Magazine* a celebrated neurologist of New York, Dr. Joseph Collins, maintained the thesis that doctors should not always tell the truth to patients. Fortunately, he does not represent the real spirit of the medical profession. At the present time when efforts are being made to advance medical progress and to increase the confidence of the public in the medical profession, it seems peculiarly unfortunate that any article should appear from so eminent a source which will tend to weaken this confidence. The success of movements for the control of cancer, of measures for the prevention of heart disease and of other similar endeavors must depend upon the intelligent co-operation of the public with the medical profession, and the basis of all this necessarily is the trust that the patient has in the doctor whom he consults. Advocacy of a policy of deliberate and intentional deception will do much to break down whatever confidence exists. To be sure, tact must always be used in dealing with patients, and it is not necessary to pour brutal truths into the unwilling ears of the sick. At the same time, when anything is told the patient it should in all its essentials be true.

Dr. Richard C. Cabot, of Boston, has made a study of this question from a scientific stand-

point and has written articles on the value of telling the truth to patients. He appears to have gone into the matter much more thoroughly than Dr. Collins did. Dr. Cabot seems to have shown from a clinical investigation that solely from a clinical standpoint this course gives better results than a deliberate policy of lying and deception. It is perfectly obvious that no one can respect a profession that must have some special lying license in order to carry on its work.

MORAL REQUIREMENTS FOR MEDICAL STUDENTS

Among the many changes affecting the medical profession the rapidly rising standards of medical education are prominent. Forty years ago practically any one who could read and write and had the price of the fees could study medicine. The standards have rapidly risen from this low level to a point where the minimum requirement is graduation from a high school and at least two years of college work. Many medical schools demand an academic degree for admission. All medical colleges now require a course of four years, and some an internship of a year in addition. This includes many of the best years of a young man's life, and there should be adequate compensation for the time and expense. But while the educational standards have advanced there has been practically no change in the requirement for moral character. The same casual certificate or letter from some acquaintance or preacher appears to be all that is necessary as to character. The consequence is that emphasis has been placed more upon the intellectual attainments and technical training than it has upon the character of the individual, and this notwithstanding the facilities for modern psychologic examinations and the opportunities for a thorough insight into the life, traits and family history of the prospective medical student. Does it not seem that this standard should have been raised at least in some degree proportionate to the standards for mental training? A candidate for the study of medicine should be fully examined to find his intentions in studying medicine, whether he is attracted to medicine as a profession or as a commercial undertaking, and whether he has an ideal of real service. Some of the medical schools might thus be relieved of their undesirable students,—undesirable on account of their ideals and their character, even

though their mental equipment is all that could be desired.

The doctor who has a bad character possesses more potentialities for doing harm if he has had scientific training than if he has not had it. Consequently, a man of low ideals and lacking in scruples can be infinitely more dangerous in these modern days with the extensive scientific instruction necessary for medicine than he could have been when not so much was known.

It would seem wise to call attention of the authorities in medical education to this very important matter in selecting students from whom later the medical profession must be filled.

PUBLIC HEALTH WORK

The Department of Public Health in Virginia has increased enormously its good work. The medical profession of this state and throughout the country is losing a great opportunity for helpful service if it does not cordially co-operate in public health measures. The public itself demands that the state take every measure possible to prevent disease and to promote the health of the people. This object is in keeping with the best ideals and traditions of the medical profession and by co-operating with the public health authorities we can attain these ideals and uphold our standing with the public. Doubtless there are instances in which the enthusiasm or tactlessness of some of the agents of the health department have offended doctors. If such occurrences are reported to the head of the health department I am sure they will be corrected or explained. If all of the local medical societies would appoint a committee to co-operate with the health authorities, much friction would be avoided and the local medical men could, through the direction of the authorities of the state health department, carry on preventive medical work such as administering toxin-antitoxin of diphtheria and similar measures, while at the same time maintaining their personal relationship to their patients and their prestige in public opinion.

"ALLOPATHY".

The public often suffers because of a lack of appreciation of the efforts of the medical profession. The word "allopathy" which was wished upon us by Hahnemann is hard to down,

and yet it is this very word that tends to create much confusion in the minds of laymen and even of some doctors. It is difficult for them to realize that regular organized medicine is not a "school" of medicine just as there is no "school" of astronomy nor "school" of anatomy,—that a doctor who is bound by a creed ceases to become a regular doctor and must practice according to his creed. A medical creed is in itself an ironbound thing that prevents progress. The regular medical doctor has a perfectly legitimate right to use any remedy that he thinks is best for his patient. Not infrequently methods employed by some of the cults are adopted in certain cases with much benefit to the patient. Naturally the members of the cults make the most of attempting to call regular doctors "allopaths", which really is a term of reproach; for it means that he who practices "allopathy" must give remedies causing symptoms unlike the disease he is treating, in contradistinction to the "homeopath" who according to his creed gives remedies causing symptoms similar to the disease.

LEGAL REGULATION OF MEDICAL PRACTICE

It seems strange that the legal regulations for the practice of veterinary medicine are really in some respects more stringent than those for the practice of medicine on human beings. Our State Health Department and our State Board of Medical Examiners have the highest standards and give faithful service, and yet in spite of their efforts not infrequently the Legislature nullifies the work of the State Board of Examiners. Of what service is a State Board to license men and women to practice medicine, when a special act of the Legislature gives the right to practice to an arrant quack,—a privilege that would not for a moment be accorded to him if he were to practice upon cattle? An unfortunate instance in our state is that of de Collard. Senate Bill No. 55, which passed the Legislature in the session of 1918 for Arthur de Collard, gave him the right to practice "poropathy" without any examination or inquiry into his scientific attainments by the State Board of Medical Examiners. This bill was earnestly opposed by representatives of the regular medical profession, but without effect. De Collard claimed to be a Corsican and a cousin of Napoleon. Undoubtedly he is foreign. He said that he graduated at several European

universities but that all of his diplomas had been burned! He would not answer the simplest question on the elements of medicine and surgery, as he said the doctors were jealous of him. His attitude could be readily and justly estimated by any man of common sense, and yet a foreigner of this type was taken up and a special measure exempting him from the State Board of Medical Examiners passed the Legislature by an overwhelming majority. I understand that several "poropathists" who have taken the course under de Collard now desire to be licensed to practice medicine in Virginia.

Part of the bill, a mass of incomprehensible and senseless jargon, is as follows:

"1. Be it enacted by the General Assembly of Virginia: That the system and practice of Poropathy and Manipulative Surgery is hereby defined to be a new branch of therapeutics and is the use and employment of medical manipulation and absorption through the pores of the skin and the mucous membrane without medicine taken through the stomach or the use of the knife, and the use and employment of healing and curative agencies and lotions, applied directly to the diseased organs and to the nerves controlling these organs, through the pores of the skin and mucous membrane, which are opened by medical manipulation, and which immediately reach the disease or ailment through the eliminating organs of the human body, and by this process, heal and cure the following diseases and ailments: Neurasthenia or nervous prostration, internal cancers, stomach or otherwise, tumors, internal and otherwise, kidneys, liver, uterus, ovaries and all obscure ailments, adipose tissue, rheumatism, locomotor ataxia, cerebrospinal meningitis, St. Vitus dance, epilepsy, paralysis, tuberculosis of the joints, heart trouble, fatty degeneration, and valvular weakness; and also adjust, heal and cure broken bones, sprains, dislocations, displacements of muscles and joints, slipping of cartilages of knees or other joints, spinal injuries, breakages or displacements of small bones of legs and feet, and supplementary system and science of Physical Culture, by which every muscle of the human body is reached, developed and strengthened without the aid of any apparatus; which treatment and Medical Manipulation consist of Poropathy, Manipulative Surgery, Massage, Physical Culture,

Dieting, Herb-lotions and Salves, also including the treatment and cure of diseases or ailments through the pores of the skin and the mucous membrane of the human body as above mentioned and specified."

This bill giving de Collard full privilege to practice and teach "poropathy" passed in the Senate in 1918 by a vote of 17 to 7, and passed in the House of Delegates by an overwhelming majority. In the public hearing of the committee on this bill de Collard exhibited among other things a piece of decayed meat in a Mason jar, and claimed that it was a cancer of the stomach, and that he had cured the patient by rubbing some material into the skin which caused him to vomit the cancer! The proponents for de Collard gravely and solemnly sat through such an exhibition. It is difficult to see how any intelligent man or woman could read this law giving special privileges to de Collard without having his risibilities aroused, except for the tragedy that such practice is permitted on our people of Virginia but would be utterly illegal for our chickens, dogs or hogs. This law is even now in full effect on the statute books, and it is strange that it seems difficult or impossible to repeal such an utter monstrosity of a law,—a disgrace to the statutes of Virginia and a menace to the health of the people.

It is an obvious duty of every member of this society to instruct not only the representatives in Legislature from his or her county or city as to the viciousness of such laws as this and special laws to legalize cults of medicine, as chiropractic, but to carry on the educational campaign among the intelligent public spirited citizens of his or her acquaintance. All the good accomplished by the State Board of Health in its public health work and by the State Board of Medical Examiners in maintaining a high standard for the medical profession may be nullified by the passage of such laws as these.

SUGGESTIONS AND RECOMMENDATIONS

Several states have adopted the plan of a post-graduate assembly for medical teaching. In Connecticut, for instance, under the auspices of the State Society, each year there is an assembly to which well-known teachers and clinicians are invited to give lectures. The lectures may be illustrated by lantern slides, specimens or patients. The lecturers are

paid their expenses. The doctors attend these meetings just as they would attend a post-graduate school. This plan might be undertaken in Virginia and those who are particularly interested could meet in such a post-graduate course under the instruction of some of the most eminent teachers and clinicians in America and at the same time be within easy reach of their homes and practices, and without the expense that such a course would cost if attended elsewhere. It has been suggested by Dr. Stewart Roberts, of Atlanta, a former president of the Southern Medical Association, that distinguished foreign medical men be invited to lecture at such an assembly.

It might also be well once in two or three years to have a general congress of medical and allied professions of Virginia. Such a suggestion has been made by Professor Wortley F. Rudd, dean of the Department of Pharmacy of the Medical College of Virginia. Druggists, nurses and doctors could very profitably have a day's session, probably in conjunction with the annual meeting of the Medical Society of Virginia, every second or third year, in which problems of common interest would be discussed.

After consulting the chairman of the Executive Council, Dr. Lawrence T. Price, and at the solicitation of several members of the Medical Society of Virginia who were interested in this matter, I have appointed a committee to survey and make recommendations upon the training of midwives. The committee consists of Dr. Greer Baughman, of Richmond, Chairman, Dr. H. D. Howe, of Hampton, Dr. J. Bolling Jones, of Petersburg, Dr. William R. Martin, of Charlotte Court House, Dr. H. G. Middlekauff, of Weyers Cave, Dr. L. A. Calkins, of the University of Virginia, and Dr. Mary E. Brydon, of the State Board of Health. Their report will be given at this meeting.

Another committee has been appointed on the regulation of technicians. It consists of Dr. Charles Phillips, of Richmond, Chairman, Dr. W. E. Bray, of the University of Virginia, Dr. R. E. Caldwell, of Lynchburg, and Mr. Aubrey H. Straus, of the State Board of Health as an associate member. There has been much confusion about the qualifications and the efficiency of technicians, a matter of very vital importance to doctors who are dependent upon labo-

ratory technicians in chemistry, general laboratory work or in roentgenology.

Permit me in closing to express my profound appreciation of the honor that was conferred upon me in electing me president of the Medical Society of Virginia—a society that has great potentialities for good both for the medical profession and for the people of Virginia and whose interest I shall always deeply cherish.

REPORT OF AN UNUSUAL CASE OF CALCULUS IN THE BLADDER.*

By LAWRENCE T. PRICE, M. D., Richmond, Va.

The following case is reported because of the unusual number and the character of stones found in the bladder, and the infrequency of stones found in the bladder of the female.

Mrs. R. M. E. entered the Memorial Hospital May 1, 1927. Age 48; widow; mother of five children; complaining of frequency of urination and tenesmus. The following history was obtained from records of a previous entry to the Hospital on September 5, 1916. The patient gave a history of having had the usual diseases of childhood, has always led and active life as a housewife, and had remained in good health until following the birth of her third child, at which time she had

tion and at times dribbling of urine, especially upon coughing or straining.

A general physical examination was negative, including the usual laboratory examinations. Patient is of slight build, weighing 122 pounds. Upon inspection of the vaginal outlet, a badly lacerated perineum was observed, and upon straining, the upper wall of the vagina would be everted, bringing along with it the urethra, producing a mass about the size of a hen egg. A cystoscopic examination was made at that time by myself, with the findings that the bladder capacity was two ounces; negative for stone and tumor. The entire mucous membrane was intensely inflamed with minute superficial ulcerations over the entire area of the bladder. Both ureter openings were observed and ureteral catheters introduced without difficulty and specimen obtained. The bladder specimen was very foul, strongly alkaline in reaction, great quantity of pus cells, many red blood cells and phosphatic crystals. The ureter specimens were negative chemically, microscopically and upon culture. Phthalein appearance normal in time and output from both kidneys. X-ray of entire urinary tract negative for stone and abnormalities.

The cystocele was thought to be responsible for the symptoms and an operation was done by a surgeon for the repair thereof. The urinary symptoms were relieved and upon the administration of sodium acid phosphate, the phosphatic urinary condition cleared up. However, shortly after leaving the hospital, the patient stated that she was not able to void without inserting her finger in the vagina to press the floor of the bladder upwards. The patient was of low mentality and the statement on the part of the patient regarding this act was not thought to be of any significance.

Upon returning to the Hospital May 1, 1927, the patient stated that she had been having a great deal of distress in the bladder region for about three years, gradually becoming more severe in character. The urine was very foul, and the patient was not able to retain the urine more than half an hour, day or night. The patient stated that she still practiced the act of inserting the finger in the vagina to successfully void. A cystoscopic examination showed a very congested condition of the mucous membrane of the bladder, and a mass of stones in the bladder, lying posterior to the trigone and occupying most of the capacity of the blad-



X-ray of bladder before operation.

a difficult delivery with a badly lacerated perineum as a result therefrom. Beginning from this time she had a frequency of urina-

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.



Photo showing actual size of stones after removal.

der. The stones observed were symmetrical in size and shape, and universally of a rectangular shape. Seventeen stones were counted. An X-ray showed a mass of stones packed into a ball formation in the bladder. A suprapubic cystotomy was done for the removal of these

stones, thirty-seven in number. The mass of stones weighed 94.5 grams (a little over 3 ounces), and a chemical analysis of several of the stones showed the composition to be calcium phosphate.

505 Professional Building.

A TREATMENT OF THE COMMON COLD.*

By COURTNEY EDMOND, M. D., F. A. C. S., Clifton Forge, Va.

"Any one who discovers a method for the prevention or, shall we say, the quick cure of the condition known as head cold would confer a boon on humanity. It is not only the inconvenience to the sufferer but the fact that so many serious complications can be traced to head colds, such as pneumonia, nephritis and the like. Like all self-limiting processes any form of treatment would seem to give results. The vogue which vaccine treatment has enjoyed seems to be dependent only on this factor. Chlorin treatment, when results have been carefully observed, does not seem to have been of any particular value.—Ed."

The above quoted lines are from the Eye, Ear, Nose and Throat Year Book for 1926. They represent the editor's foot-note after reviewing the treatment of the common cold as perfected to date of publication. The appear-

ance of this commentary would seem to justify mention of a treatment for simple coryza which in my hands has proved most satisfactory. While the procedure is purely rhinological, its details are not difficult and may be readily acquired by the general practitioner. The treatment, however, is not so simple that it may become a household remedy or that the public may become its own physician, and it is realized that it may prove trite to the initiated. In fact, it will be surprising should there be any physician who has not tried it at least in some variant manner. To those who have never used the method in detail it is hoped something useful may be offered. An occasional criticism of articles of medical literature is that, although exhibiting marked erudition and masterly familiarity with text, they fail to supply points of practical worth or what might prove "the helping hand". It

*Read before the Medical Association of the Valley of Virginia, in Clifton Forge, Va., May 26, 1927.

is here sought to reverse this order or to attempt the presentation of something simple, practical, helpful.

TECHNIQUE

The patient is seated before the physician in the usual manner of rhinological practice. With forehead-mirror, reflected light and speculum, the nasal fossae are quickly inspected. Their comparative size is especially noted to determine the proper form to give cotton pledget now to be attached to the end of a small probe. This swab should be softly made, not too large to pass freely through to the post-nasal space when conveying the remedy to be mentioned. No pressure or force is used. The two nasal chambers usually differ in contour and capacity, requiring swabs of unequal size. If a good view of their interior cannot be readily had, a 4 per cent cocaine solution is used in the usual manner to shrink the anterior ends of the turbinates. Waiting a few minutes, the speculum is again used and the mucous membrane of both nasal fossae is gently and thoroughly coated with an argyrol solution. I make this solution in my office as a routine by adding about twenty grains of argyrol crystals to about two drachms of water, stirring with wooden applicator until a dark brown color develops. It seems unnecessary to use a solution of definite percentage strength, but it should be freshly made. It is of importance to thoroughly coat the mucous membrane, after which a new swab carries a small quantity of mistol, or equivalent preparation, to just within the nostrils. The nasal speculum need not be used for this step. The menthol-camphor flavor is always well received by the patient and constitutes a somewhat pleasant termination to an otherwise not entirely agreeable experience. This step is useful, also, in wiping away any argyrol excess which may be inclined to drip from the nose.

Whenever the eyes are reddened, a few drops of the argyrol solution are placed in the conjunctival sacs, which might well become the routine practice. The patient is now directed not to blow the nose but to allow the medicines to remain *in situ* as long as possible. If blowing becomes inevitable, the patient should avoid the universally bad habit of squeezing the nostrils together preceding the act. It is my custom to coat the larger side first, which is least disturbing to the patient

and inspires a certain confidence for the smaller or narrower side, which, on account of deviated septum, or spur, may require more care of physician and fortitude of patient. Advice is given the patient to return on the following day, two treatments being sufficient in the average case. Many fail to return, considering one treatment to have accomplished a cure. Others need to be treated on several occasions, depending largely upon duration of the attack before coming to the physician. In such case the sinuses may be involved, which complication would necessarily protract the nasal infection. In using this remedy for coryza, I am reminded of antitoxin for diphtheria—the sooner given the better.

It should be noted that no cotton pledgets are left within the nose and no synergistic drugs used. In a practice extending over two decades it seems I have tried a great many remedies for the common cold. However, I am pleased to have left to my fellow-practitioners the disappointments following the use of nasal irrigations, vaccines and chlorine.

It is pertinent to mention that the argyrol method was instituted after contemplating the specific effect of the silver preparations in the milder conjunctival infections. Assuming coryza to result from like infection of the nasal-membrane, it was reasoned by analogy that similar specific results should here obtain, and in my experience this has proven true. It is perhaps needless to state that ear or sinus complications are not included as being amenable to this simple treatment. Should other physicians at first experience disappointment with this procedure, it might be ascribable to fault in technique. This has already come to notice where the argyrol coating was not thorough enough or the nasal swabs were too large for ease of manipulation or comfort to the patient. Once treated harshly, a patient becomes timid. Gentleness is the watchword and the size of the swab is of special importance. When properly given, the treatment is but mildly unpleasant, and on succeeding visits the patient takes pride in co-operating with the physician.

When administering to a new patient, without knowing the personal poise, I sometimes take the precaution to protect myself by placing a towel over my nose and mouth, clasping it with artery forceps at the back of the neck. After the first sitting the patient has usually

been silently taught not to barrage the physician and this precaution becomes unnecessary. It is better to begin the argyrol applications in the roof of the nose, continuing downward, finishing on the floor beneath the inferior turbinate well into the post-nasal space. A certain deftness in this instrumentation is desirable and easily attainable. It is well to reinspect the mucous surfaces and to retouch any small area which may appear to have been slighted. During treatment the patient should be instructed to breathe through the mouth. This insures unobstructed air current and may prevent an embarrassing spray from the nose.

"A specific," as defined by the medical dictionary before me, "is a remedy specially indicated for any particular disease". The argyrol remedy favorably comports with this definition. Other non-irritating drugs might yield as good results, but my experience with argyrol has been so gratifying that no other is preferred.

Much recently has been written in the lay journals on the pecuniary losses sustained by the large industrial units because of the common cold which constantly incapacitates employees. This loss annually must be very great. It may be that many working days would be savable with this special treatment readily available.

Should the physician feel impelled to supplement the treatment with some favored internal therapy, these topical applications could in no way furnish a contraindication. It is suggested that the treatment be first given as outlined without synergistic aid to avoid attributing curative effects to undeserving remedies.

THE SPIRIT OF RESEARCH AS TYPIFIED BY WALTER REED.*

By LAWRENCE T. ROYSTER, M. D., University, Va.

We dedicate today, as a nation's shrine, the birthplace of an immortal. It is given to few men to so serve the human race that mankind itself acclaims their immortality. It is an exceedingly difficult and hazardous task for historian or eulogizer to attempt to place such an individual in his proper setting, with relation to other great personages whose services to humanity have entitled them to permanent recognition; nor is it necessary in the case of

Walter Reed, for by common consent and without debate his name is placed in that galaxy of brilliant investigators, which includes Pasteur, Koch, Lister, Jenner, von Behring, Morton and Long; and the brilliance of the galaxy is increased by the addition of his name.

An excellent, though brief and inadequate chronicle of the life and accomplishments of Walter Reed has been given us by Howard Kelly and Caroline Latimer. These two and others who knew him and worked with him have furnished us a picture of the man. It is unnecessary, therefore to rehearse these phases of his life, available to all in book and pamphlet, and I will limit my remarks on this occasion to a brief discussion of "The Spirit of Research," as typified in the life and character of this truly great man.

Walter Reed is said by one of his biographers to have "inherited an individuality of character and a desire of knowledge" from the forebears of both of his parents. Beyond this we know little of the characteristics of his ancestors, but this alone is a goodly heritage. That he inherited something can hardly be doubted, for he was the son of a Methodist minister, and his helpmate, of ante-bellum days, sturdy individuals of undaunted courage, and definiteness of purpose. Reared in such a family in the period immediately preceding, and during the Civil War, he was early schooled to endure hardships and overcome difficulties; to accept privation and share liberally with those around him. This early training evidently did more than build a foundation for his life; a desire to serve his fellowman was developed early, for, after one year at the University of Virginia spent in academic study, he entered its Medical Department, at the very early age of seventeen, and graduated in 1869, one of the youngest graduates of that institution. After several years devoted to graduate work in New York and elsewhere, he entered the medical service of the U. S. Army and almost immediately was assigned to duty on the then distant frontier in Arizona and other western states, and served on garrison duty for the next thirteen years. These years of arduous and monotonous labor, might have broken the spirit of a less courageous individual, or have caused one less avid of knowledge to lose what of ambition he might have started life endowed with. But not so Reed. He used what few leisure hours were his for reading; the bed-

*Address given at the exercises incident to the opening of Belroi, the birthplace of Walter Reed, and its dedication as a National Shrine.

side practice in the garrison and the surrounding country was his laboratory, in which he developed his powers of observation. This training proved to be invaluable to him throughout the remainder of his life, in fact was the very basis of his future success. "Irksome duties they were, but specially fitting for his final and culminating work." His training, then, was not so much that of the laboratory as "a constant, daily unselfish devotion to the needs of others, often amid the most uncongenial surroundings." Thus, in spite of monotony, discomforts, hardships, in the quiet and solitude of the desert, the foundation of his scientific career was laid. "Es bildet ein Talent sich in der Stille." The spirit of research had been inspired.

During those years of comparative isolation in the desert, and shut off from the stimulation from contact with other enquiring minds, he did all he could, more than many another would have done. But he was not satisfied to remain longer. Realizing the inadequacy of self-training away from a teaching center, he asked for the appointment to examine recruits in Baltimore, and while there pursued studies at Johns Hopkins Hospital. He eagerly grasped the opportunities of the newly developed studies of pathology and bacteriology. His intense desire for laboratory study was gratified. What could be more inspiring to a man craving laboratory research than a period of study in such a place and under such a man as Welch? He was further inspired and fascinated by the discoveries which had been made in rapid succession just before his arrival. These discoveries included the specific causative agents of tuberculosis, cholera, leprosy, glanders, erysipelas, surgical infections, tetanus, pneumonia, typhoid fever, malaria, amebic dysentery, cerebrospinal meningitis, diphtheria and others affecting both man and domestic animals. From then on his papers bore the mark of the trained investigator.

Reed was shortly called on to serve on his first commission, to investigate the cause of the very high incidence of typhoid fever among the American troops during the Spanish-American War. As a result of this investigation by the commission, led by Reed, many new facts concerning all phases of typhoid were brought out; but particularly, that not only could typhoid fever be spread by the common fly, but that that is exactly what hap-

pened during that war. It also proved that contaminated water could transmit the disease. So far as the spread and control of typhoid is concerned, the work of that commission still stands as the most important work done, with the single exception of the discovery of the infecting organism. The crowning research work of Reed's life, however, was the extermination of yellow fever. In 1897 while on the yellow fever commission he proved that the bacillus icteroides is not the cause of yellow fever, and this discovery not only disproved a false theory, but was the first of the series of experiments which culminated in the absolute control and subsequent eradication of one of the most destructive of plagues. In 1899 the plague broke out in Havana and spread rapidly, carrying death and destruction before it, terrorizing the inhabitants of Cuba and devastating the population; striking terror to the hearts of our own troops, and consternation among relatives at home. Resentment rose to a high peak, the government was powerless, officials were dazed, and nothing was being done to check the spread of the yellow scourge, largely because nothing was known about it. The government appointed a commission for the study of yellow fever, and Reed, Carroll, Lazear, and Agramonte were named with the result as already stated. The details of the workings of this commission are too well known for further consideration at my hands. The methods pursued by Reed in the conduct of this investigation, however, do call for special attention. I do not wish to belittle any one who in any way contributed to the success of the undertaking, and many did, but "Reed was the originating, directing, and controlling name in this work, and the others were associates only."

The ravages of yellow fever had never been checked by any means then employed. Quarantine had failed, fumigation was futile, chemical sterilization appeared to be merely a waste of time; even the burning of contaminated clothing and that brought from infested localities brought no results. The burning of houses was merely scoffed at by the dread specter; yet all of these measures were still employed, just because those in authority knew nothing else to do. Reed appeared on the scene and began his study of the situation in a manner which showed him to be not only a trained investigator but a clinician of unusual ability. It was evident to him that the usual methods of plague control, employed by the

best sanitarians of the period, were useless. The solution of the problem lay in some other direction—along some line never before tried. It required but a short time for him to perceive that he must either discover the cause of the disease and subsequently develop a cure, or must determine the method of transmission and thus be able to check the spread at once. The first was the common plan—the conventional; the latter the untried—the unconventional. Had he chosen the former he would probably have failed, for the exact nature of the infecting agent is still unknown. He chose the latter plan, the mode of transmission was discovered, and in less than a year the plague was banished from the earth.

He possessed the characteristics needed for effective research, and without which any great scientific undertaking must fail. His originality was shown by the different angle of his investigation of the disease; he determined how the disease was conveyed, not its cause. He conceived the problem in a new light; older conceptions had been adhered to long enough. He devised an entirely new plan of attack. He was thoroughly unconventional. "Too much reverence for accepted teachings, and too little experience in grappling with difficulties unassisted, and they might never have been conceived or carried out." He trod not the beaten path but departed from it and made his path anew.

Reed was open minded. Carlos Finlay had long felt that the virus of yellow fever was conveyed by the bite of a certain mosquito; he had not proved it, he could not. He had stated this as his belief so often that his brother physicians and some scientists called him the "doting old fool". But even from the "old fool" Reed thought he might learn something. He listened, was impressed; but how could he prove the theory? Man alone was subject to the disease. He had daring, he had moral courage, and both asserted themselves. A hurried and whispered interview with Leonard Wood, the military governor, himself a physician. Permission was granted—for what? To experiment on human beings—to deliberately risk human lives. "In the interest of science—and for humanity." The spirit of research.

Not only must it be proven that yellow fever is transmitted by the mosquito, but that it is not conveyed by fomites, which was the accepted theory. What was the sacrifice of

one human life when the mass of mankind was to be benefited? What though the lives of Spanish hirelings be risked or even forfeited; nay more, even the lives of brave enlisted men of our own army or still more—the lives of fellow officers; Lazear, Carroll, Cooke, Kissenger, Moran and others? They had caught from Reed the spirit of investigation, of service, of sacrifice. He was willing to sacrifice and be sacrificed, if human suffering could be alleviated. "In the interest of science—and for humanity." As is well known these experiments proved the mosquito to be the conveyor of the deadly virus, and the innocuousness of fomites, and the yellow plague was conquered.

"It is given to but few scientific men to lay bare a secret of nature materially affecting the prosperity of nations, and the lives, fortunes, and happiness of thousands. Fewer still succeed in so quickly convincing brother scientists and men in authority of the truth of their discoveries, that their own eyes behold the glorious result of their labor." But Reed was sincere, he was thorough, his personality dominating, his proofs convincing, and the world accepted his work on yellow fever as final.

One prominent scientist in commenting on the far reaching results of Reed's work says that it is, "The most valuable contribution to medicine and public hygiene which has ever been made in this country, with the exception of the discovery of anesthesia. They have led and will lead to the saving of thousands of lives." President Eliot on the occasion of the conferring of an honorary degree said of Reed, "He gave to man control over that fearful scourge, Yellow Fever". This was the inscription chosen by his wife to be placed on his tomb.

Reed's work on yellow fever, typhoid, erysipelas, malaria and cholera, will endure as long as the history of these diseases. His powerful and convincing advocacy of the antitoxin treatment of diphtheria, at a time when its use still hung in the balance, cannot be forgotten, while his ability as a teacher is attested to by many an admiring pupil. The spirit of research.

Deeds themselves do not always explain the motive which prompted them nor can we fully appraise the work of great men from historical records alone. A fuller appreciation may often be had from the testimony of those with whom the individual worked, and from the corres-

pondence of the individual, and so to these sources of information we turn for a moment, to observe the man himself and try to discover the spirit which actuated his efforts. The life he led in this humble cottage as a child in a minister's family not only furnished the environment suitable for the development of certain attributes already alluded to, but no doubt imbued him with the missionary spirit which was one of the impelling forces of his whole life. When he entered active service in the Spanish-American War, it was not primarily to do research, but rather to minister to sick soldiers, the missionary, the humanitarian, the benefactor. That he was intensely human is pointed out by one observer of his career, who says, "In the poor cabins and dug-outs of the pioneers in the sparsely settled districts where he served his flag, Reed was ever a messenger of healing comfort."

While serving his flag, he learned self-control, and submission to higher authority—and also learned to direct the energies of others. While serving his flag he was called on, in sparsely settled parts of the desert, to minister to those who suffered and might have died save for his ministrations; and thus he became a clinician. Here he had emergencies to meet, and through them he learned to observe. He was not the detached scientist of the laboratory type alone but like another outstanding scientist—Sir James Mackenzie—learned most from the bedside. It was here that he acquired that keen sense of proportion, that power of discrimination which were such outstanding characteristics of his being, and which contributed so much to his ultimate success. He grasped every opportunity to observe, and saw opportunities which others better trained failed to see. What were trivialities to others were momentous factors to him.

He possessed courage of conviction, a strong moral nature, a tenacity of purpose; he spurned half truths and accepted only irrefutable proof. Yet he always kept an open mind—he doubted. Always willing to listen to the suggestions of others, and even to test their theories if plausible. The spirit of research.

One writer tells us that he "possessed force of character, self-control, a passionate love of knowledge, and a keen sense of humor," and this last is borne out in the letters to his wife's sister. This sense of humor was shared by his wife, and without it they would probably

not have endured the many hardships of a varied and trying life.

His efforts were prompted by humanitarian motives as well as by science, and he felt as others have felt, "For what purpose science, if mankind is not benefited by its discoveries." "His personality left an indelible impression on all of us with whom he associated. He was remarkably accurate and full of resolution" testifies one of his associates. He had absolute independence of thought and an unconquerable purpose—and lived to see the fulfillment of his hope. In describing the personality of Reed, a witness of one of his famous debates, the one on the specificity of diphtheria antitoxin, states that he took his stand in the gathering, "majestic, fearless, determined to conquer", and did conquer. He regarded as the true happiness the "giving what we can to life, rather than the getting what we can from it." In giving he received the blessing.

The true spirit of the man, and the one which accounts for all his success, is shown in two extracts from letters to his future wife, and they also give us a glimpse of his philosophy of life, a philosophy surmised already but rather surprising in one so young. He was studying to prepare himself for the entrance examination for the Army; he was tired and sick, and very skeptical of his success, and says "But one thing I will not permit to forsake me is my courage, and if effort will avail anything it shall not fail me in this case," and in another letter written at the age of twenty-three he states that he prefers "To suffer death rather than defeat." Once more he writes to the girl he hopes to marry in a rather mature and serious manner, "Still I believe that when a person determines to accomplish an end, that he should put forth all honest effort, nor turn aside, unless for the best of reasons; and if he meets with defeat let him accept it like a man, remembering that many better men have found themselves in a like situation. At all events I shall pursue my course until every prop is knocked from under me. Sufficient to the day is the evil thereof." There is small wonder when one reads such thoughts as these that yellow fever succumbed to his will. The spirit of research.

That Walter Reed lived the life of a true man is attested by all who knew him,—it has been called blameless; that he had a deep and quiet philosophy of life has been amply shown.

That he was enthusiastic there can be no doubt, but the over-zealousness of the fanatic was conspicuously absent; rather did he possess that abiding faith of the moral giant, the true man of science. This is shown clearly in another letter to his wife.

The fight against the dread plague had been won and he was sitting quietly reviewing the struggle, rejoicing in the victory, and contemplating the possibilities of the future. It was at the closing moment of the nineteenth century and he was anticipating the future victories for science which the new century would bring, and he wanted his wife to enjoy all this with him, and writes: "The prayer that has been mine for twenty years, that I might be permitted in some way or at some time to do something to alleviate human suffering, has been granted. A thousand happy New Years. Hark! There go the twenty-four buglers in concert, all sounding taps for the Old Year." He little thought that in eighteen short months taps would sound for him.

He left active service in the army to devote the remaining years of his life to passing on the knowledge he had acquired, through such arduous labor, to others less qualified to struggle for themselves, and in 1902, his body weakened by the years of toil, he was taken with an attack of appendicitis from which, after operation, he did not recover. It seems almost a pity, that since fate had decreed him to survive the campaign for so short a time, he had not been permitted to die from the very plague he had conquered, rather than from a prosaic appendicitis, and thus add the martyr's halo to the victor's crown. Although he had not surrendered his life in the fight at the moment of victory, in spirit he had made the great sacrifice "In the interest of science—and for humanity." "Greater love hath no man than this, that he lay down his life for his friends." The spirit of research.

ABDOMINAL PAIN FROM THE NEUROLOGIC POINT OF VIEW.*

By R. FINLEY GAYLE, JR., M. D., Richmond, Va.

No attempt is made in this paper to discuss in detail all diseases of the nervous system causing pain in the abdomen. Mention, only, of some of them will be made, and the ones in which there is the most likelihood of mistaken diagnosis will be discussed briefly.

Abdominal pain should always be thoroughly investigated from the neurologic standpoint for the reason that so many apparently obvious cases of appendicitis, cholecystitis and other affections of intra-abdominal organs are not diseases of the viscera themselves, but are root pains which radiate to these organs and have their pathology in the spinal cord, meninges, vertebrae or posterior spinal nerves. An old case of tabes dorsalis with gastric crises, when this symptom has preceded the ataxic stage, seldom comes under our observation, which has not had one or more intra-abdominal operations. Even those cases with completely absent deep reflexes and other signs of central nervous disease have not infrequently been subjected to surgery. Spinal syphilis by no means is the only neurologic disease causing intra-abdominal pain. It is mentioned as the one in which more frequent errors are likely to be made.

This paper is not an arraignment of the surgeon. The neurologist and other specialists in medicine and surgery make just as glaring mistakes. I simply wish to call to your attention and to urge upon you the importance of doing a few simple neurological tests in any examination, whether medical or surgical. Specifically, the necessary ones are the investigation of the knee jerks, pupillary reflexes, Romberg sign, observation of the gait and a test of coordination. If these be carefully done it is likely that many spinal cord and other neurologic diseases will be detected early, the patient saved the necessity of an abdominal operation and a correct diagnosis be more frequently made.

Pain is an early symptom of spinal cord tumors and is present in practically all cases of this disease, the one possible exception being tumors affecting the anterior segment of the cord alone. The location of the pain, of course, depends upon the location of the tumor in the cord. Tumors are frequently so situated in the cord as to cause pain in the abdomen. This pain is often confused as an expression of disease in some abdominal viscera, particularly if the pain is an early symptom. Almost any type of pain may be encountered. Pain in the spine, referred to the abdomen, which is exaggerated by coughing, sneezing, jarring and bending, is suggestive of an extramedullary spinal cord tumor. There are additional symptoms such as objective sensory changes, motor weakness, change in the reflexes, and other

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signs. Pain in the abdomen, which can not be absolutely attributed to other causes, should be of prime importance in warning us of the possible existence of a spinal cord tumor.

The one neurologic disease most frequently confused, because of pain, with intra-abdominal pathology, is *tabes dorsalis*. Other types of syphilis of the spinal cord may, however, and often do, cause pain referred to abdominal viscera, which at times confuse one in differentiation until objective signs of syphilis and positive serology are discovered. The type of pain encountered may be dull, continuous and diffuse throughout the abdomen, but the well known crisis which may affect any of the viscera is the most common and distressing variety. The crisis of the stomach is the one most often encountered and is probably the most severe. Certainly it is the one for which more exploratory laparotomies are done. These crises sometimes are present in the preataxic stage and may recur a long time before the nature of the underlying disease is recognized. They consist of sudden attacks of intense boring pain in the epigastrium and are most often accompanied by vomiting and sometimes by diarrhoea and pain between the shoulder blades. The attacks may be accompanied by the typical lightning pains in the legs or the pain may encircle the body like a band. The duration of this pain is usually a day or two, but some crises last two or three weeks. There is usually considerable tenderness of the epigastrium and the stomach rejects all food, traumatizing the gastric mucosa sufficiently to cause blood to be vomited. Marked weakness accompanies the vomiting as does intense nausea, palpitation, oppression in the chest and vertigo. Hiccough may accompany the gastric crises and may be an expression of diaphragmatic crises.

Intestinal or rectal crises are less common, but they may be the first signs of locomotor ataxia. They begin suddenly with severe pain in the bowels or in the rectum, are attended by a watery diarrhoea with great tenesmus, rapid exhaustion and usually great thirst. Every attempt at the taking of fluid or food is accompanied by an immediate evacuation of the bowel.

Attacks of hepatic colic with pain similar to that of the passage of a gall-stone, and attacks of renal colic with pain similar to that of the passage of a kidney stone, occurring in the course of *tabes* have been described as hepatic

and renal crises. These are extremely rare. Vesical and urethral crises are less common. They are attended by severe pain in the region of the bladder and in the urethra, occurring like colic, in a series of attacks, with a desire to empty the bladder.

These crises all terminate suddenly, either from the effect of treatment or otherwise, leaving the patient in a state of prostration. Following the gastric crises care should be taken not to allow the patient to eat heavily for twenty-four hours as another attack may be reflexly precipitated.

Objective signs of central nervous syphilis should be looked for. The absent or diminished knee jerk of *tabes*, the Argyll Robertson pupil, ataxia and other signs in combination may be expected. One should not be discouraged because of a negative blood Wassermann as in these cases it is not infrequent to find a negative blood serum Wassermann and a strongly positive spinal fluid Wassermann. The colloidal gold curve, cell count and globulin are also helpful in making a diagnosis.

It is necessary at times to give morphine to control these pains of *tabes*, but on account of the chronicity of the disease it should be given cautiously. Many tabetics become addicted to the use of opium. If salvarsanized blood serum has one virtue it is in controlling the visceral crises of locomotor ataxia. This therapeutic measure has been very successful in our hands.

There are some physicians who still doubt the existence of pain from a purely psychogenic source. There is much evidence in the literature, however, to destroy this doubt. In our files there are numerous case histories in which an outstanding symptom is hysterical pain. Localized and spontaneous pains in hysteria show a great variety, but are of very frequent occurrence. The phenomenon is a reflex visceral disturbance brought about by psychogenic factors. The existence of hysterical pain in the stomach and intestines is supported by the frequency of hysterical nausea and vomiting of undoubted psychogenic origin. The pain may be indefinite and general or specific and localized in any part of the abdomen and, as stated, is usually accompanied by extreme and severe nausea and vomiting. The patient may not retain food for days at a time and may become weak, prostrated and emaciated on account of it. Tenderness of the abdomen is usually present. Tenderness is not as a rule localized and

it may be elicited in any quadrant of the abdomen. At times when the patient's attention can be sufficiently diverted a decided lessening of the amount of tenderness will be noticed even on the deepest palpation. One seldom recognizes pain as the only manifestation of hysteria unless by chance the examiner is blind to the recognition of other evidences of psychoneurosis and to the psychogenic factor in the production of disease. It is nevertheless true that many physicians can appreciate disease only from a physical basis. Accompanying the pain in hysteria are other symptoms common to the disease, such as emotional instability, insomnia, anxiety, fears, tremors, depression, apprehension and others too numerous to mention. These symptoms do not come on without cause and these patients are just as truly sick as though they had pneumonia or some other organic disease. The symptom of pain and the other symptoms mentioned are not imaginary, as so often explained to the patient. The pain is a misinterpreted sensation and one which is subconsciously exaggerated due to more or less constant subconscious effort on the part of the patient to escape reality. Underlying all of this there is some mental conflict with which the patients are unable to adequately cope and to which they can not readily adjust themselves. The simple fact of telling patients that they are nervous, or hysterical, or neurasthenic or describing their disease in some other inadequate term does not satisfy the patient nor cure the disease. Neither does the prescribing of a little bromide and patting them on the back, at the same time telling them there is nothing wrong, improve their condition. An understanding of the personality make-up with a knowledge of the patient's conflicts and repression is of prime importance in properly enabling this class of individual to make the necessary adjustment so that he may live comfortably and happily. Mental purgation, in other words, a complete unburdening of the innermost secrets of their lives, is important in order to help to mentally re-educate and readjust the individual.

A young woman recently came under our observation who had had two major operations within the past year because of severe abdominal pain, nausea and vomiting. No pathology was found at either operation. She was referred to us because of the functionally nervous element in the case. We obtained the

patient's confidence and learned that she had been most unhappy in her home, had become nervous and developed intestinal symptoms of pain and vomiting. There was a conflict with her mother about marriage. She finally secretly married the man she did not love, has not lived with him and since has developed more abdominal pain and almost constant vomiting. Psychogenic vomiting can usually be explained as a mental disgust for something. This patient would vomit violently when the man she married came near her. The thought of him, which was distasteful, was buried in her subconscious mind and for this reason she vomited most of the time, even though he was not present.

In the great majority of cases of lead neuritis the typical paralysis of the disease is preceded by a severe attack of abdominal pain and colic. There is intense pain in the region of the umbilicus, attended by obstinate constipation, and very often by nausea and vomiting. The pain and colic are thought to be due to an irritation of the visceral nerves by lead. It may also be due to a distention of the intestines from paralysis of these nerves and cessation of peristaltic action. There is usually the characteristic blue line along the gums, the history of exposure to lead, red blood cell stippling, basophilic degeneration and the characteristic wrist drop.

Unexplained pain in the back and in the abdomen is not infrequently sent to the neurologist for diagnosis. Many patients suffering in this manner have what is primarily an orthopedic disease, hypertrophic spondylitis. The exostoses on the vertebrae cause direct pressure on the spinal nerve roots, giving pain in the region innervated by these roots. Spondylitis is most common in the dorsal and lumbar spine and for this reason abdominal pain is present in at least 50 per cent of patients suffering with this disease. The abdominal pain of spondylitis is quite often mistaken for chronic appendicitis and other intra-abdominal diseases. Spinal tenderness, spinal rigidity, the relief of symptoms by rest and the presence of arthritic changes as shown by the X-ray are the main diagnostic points.

Spinal myelitis, either acute or chronic, may be ushered in by pain in the abdomen together with sensory disturbances of the skin. Sooner or later motor symptoms with reflex changes will be observed and it should not be difficult

to clear up the diagnosis in a relatively short time.

Unilateral pain, either deep or in the abdominal wall, may be present for varying lengths of time in herpes zoster before the appearance of the herpetic eruption. The etiology of the pain is likely to be difficult to determine before the vesicles appear. This condition is a radiculitis of toxic or infectious origin.

Morphine addicts almost invariably suffer intensely with abdominal pain and cramps when the drug is withdrawn. Pain is usually in the stomach or intestines and is accompanied by diarrhoea. The discomfort is, at times, so unbearable that the reduction has to be slowed up or larger quantities of morphia given.

Various other lesions of the posterior columns of the cord or posterior spinal nerve roots, if at the right level of the spinal cord, cause intra-abdominal pain. These are either inflammatory, such as the different forms of myelitis, including poliomyelitis, radiculitis and meningitis; or traumatic, from injury to the cord, the vertebrae or posterior nerve roots; or degenerative due to disseminated sclerosis, combined spinal sclerosis, spinal vertebrae caries and bone malignancy.

Hence, the most definite abdominal pain, even accompanied by other abdominal symptoms, may be occult in that it may be referred from a variety of lesions of the central nervous system or be entirely psychogenic in origin. It therefore behooves all of those who attempt the diagnosis of intra-abdominal conditions not only to bear in mind the possibility of abdominal pain being due to neurologic factors but also to be prepared to make the examinations and do the neurologic tests necessary to exclude the various extra-abdominal conditions briefly mentioned in this paper.

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REMARKS ON THE MANAGEMENT OF BENIGN PROSTATIC HYPERTROPHY.*

By CHARLES P. HOWZE, M. D., Danville, Va.

One of the outstanding achievements of modern urology is the management of benign prostatic hypertrophy. The operative mortality rate, in the hands of the well trained urologist, has been reduced to a striking figure, when it is considered that the majority of pa-

tients come for treatment in the sixth and seventh decades of life. Young¹ has reported a series of 165 consecutive cases without a death, and other writers, similar groups with a very low mortality rate. The figures, however, are somewhat misleading, as there are a group of cases referred to very infrequently by present day writers; those who die during the period of preliminary preparation for prostatectomy, or without treatment. This group is a most important one, and the statistics of the larger clinics, individuals doing this field of work, and the Bureau of Vital Statistics would prove both interesting and timely. From my own experience, I believe this class would show a 4 to 5 per cent mortality—I refer to the preparatory mortality. It is in this group that improvement is needed and to which the attention of the profession must be called, for, unless the cases are seen at an earlier stage, before irreparable damage is done, there is little hope for further improvement.

The prostate shows definite enlargement in approximately one-third (1/3) of men past middle life. About one-half of this number will have some symptoms of obstruction to the normal act of micturition. A too large percentage of this number are neglected to the extent that they are not given the benefit of careful study, and when many are forced to seek surgical measures for relief, their condition is usually precarious. In the face of present day statistics, to deny these patients the possible benefits of earlier examinations and perhaps relief by minor operative procedures in some, is not only unfair to them, but unfair to the surgeon. As in other fields of medical endeavor, the trend should be toward preventive medicine. Can we prevent, to any extent, the benign hypertrophy, which, in the past, has meant either major operative procedure or death from uremia and other complications secondary to a vesical neck obstruction? If we can prevent a small number, we are going forward.

Caulk,² of St. Louis is treating an increasing number of cases by removal of the obstruction, or portions of the obstructing gland, by means of a cautery punch operation. His percentage of operations by this method has increased from around 14 per cent in 1920 to 63 per cent in 1925. The conclusions drawn from his experience are both interesting and instructive, since he has applied this method

*Read at the South Piedmont Medical Society, South Boston, Va., November 16, 1926.

to some of the larger types of hypertrophy with good results. Heretofore, the punch operation was reserved for that small group of contractures and median bar formations (about 14 per cent of all obstructions) where it is the method of choice. I shall quote directly from his paper: "A careful observation of the vesical neck in obstruction is essential. A contracture may assume a variety of shapes depending upon the reactions in the surrounding parts of the gland. I believe that the contracted neck with its various configurations is responsible for at least 40 per cent of benign vesical neck obstructions, and that after drainage with catheter and with incision of the orifice, resolution may be expected in the majority of instances. I am firmly of the opinion that most of the so-called hypertrophies are inflammatory in origin. If one adds to this figure the instances of cancer responsible for contraction—certainly 10 per cent—a total of 50 per cent of all obstruction will fall in this category. If these proofs be accepted as demonstrating the correctness of the theory that inflammation is the true cause of the majority of prostatic hypertrophies, then with proper education, may not many of these enlargements be avoided? If such enlargements may be expected in 30 per cent of individuals past middle life, it would seem wise and essential to institute a campaign of education among the profession to examine the prostate of all men, particularly after forty, as a part of a general physical examination, and if infection or enlargement be present, though they be symptomless, treatment directed towards their correction should be instituted. If there should be early signs of obstruction, it should be removed by minor measures and, in this way, it may be possible to protect a large number of the prostatic enlargements later in life."

It is not within the realm of this paper to discuss the etiology of benign hypertrophy. Whether inflammation is a direct cause remains to be proven. The fact remains that it is frequently associated with the adenomatous enlargement, and any one familiar with prostatic surgery, has noticed the marked diminution in size of the gland following drainage. A very large gland at the time of the institution of drainage has been frequently observed to shrink to a size which causes very little obstruction at the time of subsequent prostatectomy.

To what can be attributed the great improvement in mortality? There have been very few changes of importance in operative technique. The improvement is directly due to the preliminary preparation of the patient, the choice of anesthetic and operation, and the post-operative care. Hunt³ of the Mayo Clinic states: "In 1,300 odd prostatectomies, previous to 1920, uremia was responsible for death in about 50 per cent of the cases, and pneumonia, cardiac complications, and general sepsis were all equally responsible for the remaining deaths. However, in the past four years, using spinal, sacral and regional anesthesia, pneumonia as the cause of death has entirely disappeared, and the only cases of pneumonia now, are embolic in origin. Furthermore, death from uremia, after our present method of preliminary preparation of these patients by means of the Van Zwallenburg method of gradual decompression of the bladder, has been practically eliminated. The use of the Pilcher hemostatic bag in the past four years has caused death from shock and secondary bleeding practically to disappear. At the present time coronary sclerosis, various heart conditions, and pulmonary embolism are the main factors we have to deal with in death following prostatectomy."

The successful management of prostatic hypertrophy necessitates a painstaking and careful study. Bugbee has rightly said "Removal of the prostate gland is but an incident in the treatment of prostatic obstruction." Unless this fact is realized, the mortality will be high in the hands of the most skilled operators. The preparation of these patients for operation is easily the most important phase of the treatment. It is directed to restore the kidneys, heart, and lungs to their maximum working capacity, and there is no time limit to this treatment. The time of operation cannot be chosen by any set rule. Some cases will undergo successful prostatectomy after preparation of one week, while others will require months. I am firmly of the opinion that every case should have as a minimum, ten days of drainage through an indwelling catheter or a suprapubic tube before prostatectomy is attempted.

The restoration of impaired renal function is the most important aspect of the preparation of these patients, and this can only be made possible by adequate drainage. In ap-

proximately 80 per cent, it can be carried out satisfactorily by an indwelling urethral catheter, and the operation done in one stage. In those cases complicated by calculi, diverticula, and severe infection, the drainage is best through a suprapubic tube. In all cases of acute retention or chronically over distended bladders and paradoxical incontinence, the intravesical tension should be diminished gradually. To release this pressure suddenly is to court disaster, due to resulting edema of the bladder and kidneys, a diminution of urinary secretion, with an increased retention of toxic products in the blood. The simplest method is to attach the retention catheter to a long tube emptying into an elevated receptacle. The height of this receptacle is adjusted so a few drops of urine trickle over on deep inspiration and it is gradually lowered each day as the bladder pressure diminishes. This method is attended with far less reaction in my hands, than the preliminary suprapubic drainage, in which case, it is very difficult to avoid the escape of a large quantity of urine at the time of operation. In two cases with very large acute retentions, in which a catheter could not be passed, I have resorted to the placing of a catheter in the bladder suprapubically by means of a trocar and canula and employing gradual decompression as with the indwelling urethral catheter. This method is not without its dangers as it is a rather blind procedure. A safer method would be to expose the bladder under local anesthesia and then place the catheter in uppermost portion of the bladder by means of the trocar and canula.

The toxemia resulting from impaired renal function is combated by a large intake of fluids. In the average case, sufficient quantity can be administered by mouth. In the more toxic, with impending uremia, other avenues of introduction must be used to supplement. At least 1,000 c.c. of normal saline should be given daily, either intravenously or subcutaneously until the urinary output is sufficient and toxic symptoms have disappeared. The intravenous or subcutaneous infusion of saline or glucose solution is the most efficacious means at our command for treating the kidney infection so frequently associated with bladder neck obstruction. During the febrile period, large quantities of fluid should be given. The associated bladder infection is combated by daily irrigations of some antiseptic. Renal functional tests are made at five day intervals

and under the routine as outlined above, the improvement in kidney function, as shown by estimation of the blood urea and "pthalein" output, is progressive. If the improvement in renal function and general condition is slow, after a few weeks of treatment, a suprapubic cystostomy is done and the patient is allowed to return home for an indefinite period, until he is a fit subject for operative removal of the gland. These cases are quite comfortable wearing the suprapubic Pezzar catheter. The catheter should be removed and cleansed every ten days to insure proper drainage, and the bladder irrigated daily to combat infection.

The incidence of cardio-vascular disease is high in this class of patients. In many of my recent cases I have given digitalis for several days before operation, feeling that it places the circulatory system in the best possible condition to withstand the operative procedure. The blood pressure is found to become stabilized after preliminary drainage and the cases with high pressure seem to do as well as those within normal limits.

I am a firm believer that all cases possible should have a cystoscopic examination previous to operation. It is only by this examination the true condition of the obstruction can be diagnosed and rational treatment instituted. I have been able to cystoscope practically all cases and have as yet to see any untoward result. The examination is usually done about three days before the contemplated operation, when the patient is in good condition. The information gathered from cystoscopy has been of the greatest value in determining the method of operative attack. If cystoscopy is not feasible, a cystogram should be made to rule out diverticula and calculi.

The question of the method of prostatectomy is still a matter of divided opinion. Personally, I feel that there are indications for both the suprapubic and perineal route and the method of choice depends in large measure on the condition of the patient and the pathological condition of the vesical neck obstruction. The majority of cases are more satisfactorily removed by the suprapubic approach. The small fibrous prostate, the intraurethral lateral lobe enlargement, the debilitated and aged, and those patients with very fat abdominal walls and small contracted bladders, do best following perineal prostatectomy.

As a very small factor may mean the dif-

ference between success and failure in these old men, much attention has been paid to the question of anesthesia in recent years. In the perineal operation, sacral anesthesia has proved a very valuable adjunct in treatment. In the majority of instances, the operation may be carried out entirely by this method. In a few, due to faulty technic or other unaccountable factors, a small amount of nitrous oxide is necessary. The suprapubic enucleation is safest under sacral anesthesia and suprapubic field block.

The observations which I have discussed are based on a small series of forty-one prostatectomies for benign hypertrophy. The cases of carcinoma, median bar formations and contractures of the vesical neck are not included. The operative treatment in this series has been as follows: one stage suprapubic prostatectomy with preliminary catheter drainage twenty; two stage suprapubic ten; perineal nine; perineal prostatectomy following a period of suprapubic drainage two. There were two deaths giving a mortality rate of 4.8 per cent. One death occurred following perineal prostatectomy and the second in the two stage suprapubic group. Both deaths were due to secondary hemorrhage following the removal of gauze packing used to control hemorrhage at the time of operation. Both cases were re-packed but the loss of blood could not be overcome. Unfortunately, a blood transfusion was not done, as no available donor could be obtained. Perhaps this procedure might have been successful in saving one or both. In the recent suprapubic prostatectomies, the hemorrhage following enucleation has been quite satisfactorily controlled by the Pilcher bag, and by means of this method, the post-operative bleeding, which is occasionally seen after the removal of gauze packing, is eliminated.

In conclusion, there is one point which is important. As a general rule, the post-operative care of prostatic cases is somewhat neglected. We should not feel that the patient is completely cured when discharged from the hospital. The morbidity can be reduced if we attempt to restore the bladder to its normal function. Many cases will harbor a cystitis, or inflammation of the prostatic capsule and seminal vesicles, which will continue to cause some symptoms. With bladder irrigation and massage the infection can be cleared up in prac-

tically all cases and the urinary frequency and dysuria eliminated.

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SOME NEW METHODS OF INFANT FEEDING.*

By W. B. McILWAINE, M. D., Petersburg, Va.

The subject of infant feeding is indeed an interesting one, not only to the pediatrician but to every medical man, be he surgeon, diagnostician, orthopedist, ear, eye, nose and throat specialist, or family physician. And this is rightly so, for many of the upsets and diseases of later life are based directly on improper feeding and malnutrition in the infant and young child. And so I do not feel that a paper on this subject is out of place on such a program as we have today.

The history of the early days of artificial infant feeding is fascinating in the extreme, though we will have to pass hurriedly over it to bring me to the real subject of this paper.

It is hard to say exactly when the different ideas originated. From the idea that only breast milk would do, through the era of infant feeding by circulars and "direction on the can" of the proprietary houses selling the food, these directions to be carried out by anyone from grandma to ignorant colored women, into the scientific activities and wonderful advancement of Jacobi and Rotch, through the varying schools of feeding, as the percentage of the formula and the caloric value of the formula, called, in short, the percentage feeding and the caloric feeding. I remember so well when I was studying in New York my preceptors openly scoffed at the Boston men for worrying about the percentages of their milk formulas, and when I moved on to Boston the leaders there by their teaching and manner intimated that the caloric feeding was very unscientific. From this we come into the era of the Western influence, probably based on the German ideas of early and widely increasing the infant's diet to things other than milk, and on into the present with its newer additions to our armamentarium which are a great help to us in handling our cases of infant dietetics. Three of these are:

*Read before the Southside Virginia Medical Association at its meeting in Emporia, Va., June 14, 1927.

1. Dried Milks.
2. Lactic Acid Milk.
3. Protein Milk.

The idea today in infant feeding is so well expressed by the late Dr. Holt that I shall quote his words: "The scientific feeding of infants, whether with woman's milk or some substitute, demands as a basic principle that the food furnish what the body needs for heat and the repair of waste or the maintenance requirements and also for its normal development or growth requirements." This, in terms of our not quite so scientific and jazzy 1927, is the slogan of today which is "feed the baby". That is our object. What does it matter if he gets 100 calories more or less, or a $\frac{1}{2}$ per cent more fat or 1 per cent less sugar if that baby we are feeding is growing, thriving, and meeting the requirements of health, strength, and nutrition? When I hear a man say, I only use cow's milk, I know that he is feeding only a class of patients who are subject to the best surroundings. If I know a doctor who only uses Eagle Brand Condensed Milk, I know that he has seen enough to know that cow's milk in his community is unsafe and that up to a few years ago condensed milk was the best substitute. I defy any one to say that any one form of food always suits every baby, but a doctor should be able to say that, give me a baby and I will do my best to make one of the many foods suit him. It is foolish for us to say that condensed milk is poison and not fit to feed infants on. The older generation knew better; there are thousands of babies who in years gone by and even today have been raised on condensed milk. But we should realize and try to get our mothers to realize that while it may be all right, still it is a dangerous food when not used by one who knows how deficient it is in fats and proteins and how high it is in sugar, and how babies develop rickets and scurvy when fed improperly on this type of feeding. It is just as foolish for us to think we have found a food for all babies, that will meet all requirements, as it was for Ponce de Leon to say he had found the "fountain of youth." Some will say, "Why breast milk is perfect." Not at all. Many babies develop rickets, malnutrition, indigestion, diarrhea, and marasmus on the breast. Why, only recently I had a baby starving to death on the breast under the care of one of the leading pediatricists of a near-

by state. The cry "keep your baby on the breast", which is good in theory, is the cause of many troubles and not a few deaths in infancy. Better instruct those who have the feeding of infants on their hands to examine the infant and keep him up to standard, if you have to give condensed milk, cow's milk, cereals, foods of all kinds, orange juice, or what not. It is not what you put into a baby's stomach that counts; it is what the baby does with what is put therein. For what advantage is it to give the most perfect breast milk, if the patient will not retain it? Better some unscientific formula or, much better, a scientific one based on the knowledge of nutritional requirements and with the idea that the baby is more important than the food.

I started an infant on Dryco a few years ago; at three months it was getting on fine. I was pleased, the mother was satisfied and the grandmother was delighted. The family moved to New York City and according to my instructions she took her baby to a baby's specialist. He examined the child, remarked how well it was but his unctious soul was horrified when further inquiry elicited the information that it was taking Dryco. Immediately he put it on a fresh cow's milk formula; the child was made ill, developed dysentery, went into malnutrition, respiratory infection set in, otitis and mastoid operation, hospital, doctor's expense, worry, and a hard, hard struggle. Now I do not blame that physician for changing the food if he really thought cow's milk preferable in his location, but why change with the suddenness of a typhoon? Why not lead the infant by easy stages to his correct formula? I'll tell you why. He forgot all about the baby; thought entirely about theoretical food values, and so fell into the pit—set so close to the feet of the egotist. But I ramble and ask your pardon.

First, then we have DRIED MILK.—Unquestionably one of the greatest advances in artificial infant feeding has been the development of dried cow's milk. I have classified the trade names, the advantages and disadvantages, in Table No. 1.

TABLE I
DRIED MILKS
NAME

1. Dryco.....Dryco Company, New York.
2. Klim....Merrell-Soule Co., Syracuse, N. Y.

3. Recolac....Mead-Johnson Co., Evansville, Ind.

ADVANTAGES

1. Ease of administration.
2. Sterility.
3. Can be used without ice.
4. Easily digested.
5. Plus vitamins, is a well balanced food.
6. Relatively low in carbohydrates, which should be added.
7. Good food for use while traveling.
8. Good for type of people who need very simple formulas due to mental and environmental defects.
9. Seems to be an excellent complementary feeding with breast milk.

DISADVANTAGES

1. Canned food, is not a "fresh" food.
2. Constipating unless carbohydrates are added; then tendency to form hard stools.
3. Not as good for prolonged feeding as cow's milk formula.

Second.—LACTIC ACID MILK.—Probably no recent scientific discovery in the pediatric field, unless it be the administration of toxin-anti-toxin, has been as great help to physicians as the acidified milks. Its father in America is W. McKim Marriott, of St. Louis,—if I am not giving credit where credit is due—still Dr. Marriott certainly did more to popularize this type of feeding than any one I know of, and deserves a lot of thanks from many, many physicians, as it seems to fit so many cases so admirably. I have the methods of preparation, advantages, and disadvantages under Table No. 2.

TABLE II

LACTIC ACID MILKS

METHOD OF PREPARATION

1. Take one pint of fresh cow's milk, boil for five minutes, add water to make one pint. Add one tablespoonful of Karo Corn Syrup (blue label) or cane sugar. Put in ice box; when cold, add forty to sixty drops of lactic acid, stirring slowly all the time. The milk may thicken or separate.

2. Dried Lactic Acid Milk, Merrell-Soule Company, Syracuse, N. Y.

ADVANTAGES

1. "Boiled" so protein can be easily digested.
2. Addition of lactic acid allows whole milk to be used, and thus we get more food value and infants gain more rapidly.

3. Keeps longer and is safer than plain cow's milk.

4. Easily digested.

5. May be given from birth.

DISADVANTAGES

1. Does not have a pleasant taste, so infants may not take it. Saccharine may be added.

2. Some infants' stomachs will not take acid milk as well as sweet milk formulas.

3. Requires ice unless a dried formula is used.

4. Not always easy to make as it seems.

Third—PROTEIN MILK.—For our present time of year, June to October, this addition to our infant feeding formulas is of the greatest importance. Many cases of fermentative diarrhea have been saved by this type of feeding. We must give credit to Finkelstein and his co-workers for the development of protein milk and its use in the so called "green diarrhea". I have classified the trade names and the methods of preparing protein milks, and also the advantages and disadvantages under Table No. 3.

TABLE III

PROTEIN MILK

1. Formulas may be made from fresh milk by the addition of Casec, Mead-Johnson Company, or Larosan, Hoffman La Roche Company, or Protolac, The Dry Milk Company, by following the very simple directions that come with the powder.

2. Mead's Powdered Protein Milk.

3. Merrell-Soule Powdered Protein Milk.

ADVANTAGES

1. High protein content, which prevents fermentation.

2. Easily digested.

3. Almost specific for fermentative diarrhea.

4. Requires no ice with dried forms.

DISADVANTAGES

1. Bad taste, but saccharine may be added.

2. Some infants refuse to take it.

3. To be used only temporarily.

4. Not to be used in dysenteric types of diarrheas.

And now, in conclusion, may I say that anyone can use these three powerful instruments in their feeding problems. Few, indeed, of the many, many infants are seen by the pediatricist, and if this paper has been of any service to that great body of family physicians who usher the baby into the world, and escort him through, instructing him in all medi-

cal phases of a well-rounded life and finally closing his eyes in that last eventful sleep; I shall consider my feeble efforts well worth while.

434 West Washington Street.

ACTUTE TETANUS—WITH REPORT OF CASE.*

By ANDREW F. GIESEN, M. D., Brownsburg, Va.

Tetanus is a microbic disease, invariably preceded by some injury or focus of infection and characterized by spasm of the voluntary muscles.

Symptoms: Acute tetanus begins, as a rule, within ten or twelve days of an accident. The usual period of incubation is three to four days. Among the premonitory symptoms are restlessness, sleeplessness, headache, chilliness, darting pains in various regions, frequent and difficult micturition, and perhaps pain about the wound. There may be painless contractions and tremors of the injured extremity. In most cases of tetanus the first symptom noticed by the patient is stiffness of the jaw in opening the mouth. In some cases the first symptom is stiffness of the neck and the patient believes he has "caught cold." Sometimes the stiffness may begin in the abdomen. In any case the jaw and neck soon become stiff, and, finally, both the neck and jaw become as rigid as iron. The fixation of the jaw is called trismus. The muscles of the back, legs and abdomen are thrown into tonic spasms, but the arms rarely suffer. Spasm of the face muscles is characteristic and is known as the "sardonic smile." Contraction of the muscles of the back is so powerful as to bend the patient to a curve like a bow and allow him to rest only on his heels and occiput. This condition is known as opisthotonos. The characteristic condition in tetanus is one of diffuse tonic spasm aggravated frequently by clonic spasms arising from peripheral irritations. These irritations may be drafts, sounds, lights, shaking of the bed, swallowing, or even being spoken to. The clonic spasms begin early in the disease and become more frequent and more violent as the disease progresses. The muscles become more rigid and the attitude produced by tonic contraction of the muscles is temporarily exaggerated. A typical picture of a tonic contraction is the jaw rigidly locked, the eyes are fixed and stare widely, nostrils are

distended, angles of the mouth are retracted, lips are flattened and teeth exposed, all the facial lines are accentuated, and the expression is one mainly of fear and pain. There is a severe thirst and muscular soreness with pain around the pericardium.

The disease is always accompanied by temperature, hyperpyrexia sometimes occurring, constipation is present, while urinary secretion is scanty and often retention of urine occurs. The pulse is seldom above 80 or 90. The mind is almost invariably clear.

Pathology: The tetanus bacillus is anaerobic, and characterized by the formation of spores, which are found particularly in garden soil, dust on the walls, dirt and refuse of stables. It is thought that they gain in virulence in the intestinal canal. The organisms are carried into the tissues where toxic products are produced. The toxic products without any bacteria enter the end organs of the motor nerves, ascend along the perineural lymph sheaths, reach the spinal cord and medulla, becoming fixed in the nerve cells, and produce symptoms of the disease. Tetanus is an intoxication and not an infection. A drop of blood from an animal with tetanus when injected into another animal will produce the disease. Tetanus toxin poisons the nervous system as strychnia or any other vegetable alkaloid, it being probably the most powerful poison. The toxin is carried to the cord by the motor nerves only. It is not only absorbed by the lymph channels of the nerve but also descends along the axis-cylinder of the nerve itself and reaches the motor cells of the cord. The irritation of the motor cord produces the tonic contraction of the muscles; the excitation of the sensory neurons is responsible for the clonic convulsions.

We also have chronic tetanus which comes on from ten days to several weeks after a wound has been inflicted. The symptoms are not as severe as acute tetanus. The muscular spasm is widespread, but is usually not persistent. Intervals of relaxation occur, permitting sleep and taking of food. Modern methods of treatment have reduced the mortality of chronic tetanus.

Differential Diagnosis: Tetanus is to be differentiated from strychnine poisoning, which is easily done. In tetanus you have the history of a wound; twitching of the facial muscles comes on slowly and the jaws are ini-

*Report of a case treated while at the Jackson Memorial Hospital, Miami, Florida.

tially involved; persistent muscular rigidity with complete relaxation between convulsions is not otherwise seen except in a few cases of chronic tetanus. Consciousness is preserved until death. In strychnia poisoning there is a history, as a rule, of taking the drug, special senses are sharpened, muscular symptoms develop more rapidly than in tetanus, and rigidity begins in the extremities. The jaws are the last part of the body to be affected, its muscles being relaxed at first except during a severe convulsion, when the jaw is set, this relaxing as soon as the convulsion wears off.

Treatment: The treatment of tetanus is a preventive one. Every patient with a wound occurring around any construction where there is dust and dirt, around stables, puncture wounds, gunshot wounds, or where there is the least suspicion that tetanus might be considered, should receive 1,500 units of antitetanic serum, and, if deemed necessary, this should be repeated on the third day. In the treatment of an acute case of tetanus, the patient should be in a well-ventilated, somewhat darkened, quiet room, as far as possible excluded from any peripheral irritation. Watch for the retention of urine; secure bowel movement by salines, castor-oil or enemas; stimulate with alcohol; give in liquid form as much nourishing food as possible by mouth or nasal gavage, rectal feeding, and hypodermoclysis if necessary. Convulsions may be controlled by bromides and chloral; some advocate magnesium sulphate solution, 50 per cent given intramuscularly, intravenously, or intraspinaly. The point of entrance is incised and cauterized thoroughly, it being best to put in a drain. The antitetanic serum is given in heroic doses, intraspinaly, intramuscularly, and intravenously. It is recommended that 10,000 units be given intravenously and 5,000 intraspinaly, to be followed in three days with 10,000 intramuscularly to get the prolonged effect, but these doses may be given in larger amounts.

CASE REPORT

Mary, age eleven, white female child, entered the hospital at noon, June 1st, with a history of stiffness of the jaw.

Present Illness: Patient noticed a stiffness in the jaws the morning of the day before entering the hospital. History obtained of having run a nail in the sole of the right foot one week prior to coming to the hospital.

Past History: Essentially negative.

Family History: Essentially negative.

Physical Examination: Patient, a rather well-nourished and developed female child, somewhat anemic, walked into the hospital, having no pain, and complaining of nothing except stiffness of the jaw,—being unable to open her mouth. Temperature 103, pulse 100, respiration 22.

Head and Neck: A stiffness of the jaw and muscles of the face.

Teeth: In good condition.

Eyes, nose and ears were negative.

Lungs: Negative.

Heart: Negative.

Abdomen: Rigidity of the abdominal muscles, but not tender to touch. Rigidity of the spinal muscles, but not so marked.

Reflexes: Exaggerated patella, negative Babinski, no ankle clonus.

Treatment: 20,000 units of tetanus antitoxin were given intramuscularly on admission, 10,000 intravenously, and 10,000 intraspinaly. The spinal fluid was found at this time to be under slight pressure. W. B. C. cell count was 7,200 per cu. m.m., smear showed much pus and predominating polymorphonuclear cells, but no organisms were found. Incision made over the wound and cauterized with KMnO_4 , MgSO_4 was given intravenously on the second day after admission to prevent convulsions. The patient had a slight chill following this administration, and caffeine sodium benzoate, $7\frac{1}{2}$ grs., was given for weak pulse. On the second day rigidity was more marked and patient seemed to be getting progressively worse, complaining of pain in the back and hunger. 10,000 units more of antitoxin were given intramuscularly.

Third day.—Condition seems poor, 10,000 units of antitoxin given intraspinaly. The spinal fluid was found at this time to be under considerable more pressure. Nasal gavage—feeding milk.

Fourth day.—Condition unchanged. A spinal puncture was done and about 40 c.c. of fluid water withdrawn. No antitoxin was given in the spine, although 20,000 units were administered intramuscularly.

Fifth day.—Slight improvement noticed; temperature beginning to recede; child slept considerably.

Sixth day.—Condition somewhat improved;

began to move head slightly; rigidity of the spinal muscles not as marked.

Seventh day.—Condition about the same. Patient complains of hunger.

Eighth day.—20,000 units of antitoxin were given intramuscularly. Patient taking nourishment in liquid form freely. Temperature receded as low as 99.

Ninth day.—Considerable secretion in throat, for which atropine was given. The muscles seemed somewhat relaxed.

Tenth day.—Improved; no pain; jaw less stiff; mouth opened slightly.

From the 10th day on, patient improved. On the 15th day, nourishment was taken freely.

Patient was discharged on the 23rd day after admission. General condition satisfactory. Slight rigidity in the masseter muscles. Case was not seen after dismissed.

This case received 100,000 units of antitetanic serum.

INFANT MORTALITY STUDY, NO. I.

By EMILY GARDNER, M. D., Richmond, Va.
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State Board of Health.

Because for the past seven years there has been no consistent fall in the infant mortality rate in Virginia it was deemed advisable to make a study of the vital statistics for two years in order to see if the cause for this failure of rate decline could be disclosed. The years 1924 and 1925 were chosen, as in these years the infant death rate mounted from 77 to 80. As far as is known there was no seasonal or epidemic incidence to account for this rise.

That large enough figures might be available three groups of counties were taken for this study. Figures for cities were excluded. Attempt was made to comprise within each group counties somewhat alike in population, industry and topography. One group is located in the southern and tidewater section of the State. For convenience we will call it Group I. This group includes the counties of Princess Anne, Norfolk, Nansemond, Isle of Wight, Southampton, Sussex, Surry, Prince George, Dinwiddie and Greensville. The population of this group of counties is over one-half colored; the industry is largely agriculture.

The second group of counties are those which form the Peninsula in eastern Virginia. It is composed of the counties of Charles City,

New Kent, James City, York, Warwick and Elizabeth City. Here again the colored population is large but not so great as in Group I. Only a little more than one-third are colored. The industry is also largely agriculture.

The third group of counties is located in the extreme western part of the State and is quite mountainous. A ridge of the Alleghanies passes through this group. It is composed of Highland, Bath, Alleghany, Craig, Giles and Bland. The population is almost entirely white. The industries are stock raising and mining of different sorts.

The following table gives the population, birth rate and infant mortality rate of each group: (See page 495).

It will be seen that the first two groups are a great deal more thickly populated than the third.

The total birth rate shows a decline of three points in Group I, only one point in Group III, and practically none in Group II. Group II, however, has the lowest total birth rate. In Group I the colored birth rate is double that of the white, while in Group II it is one-half again as large. In Group I especially is found an exceedingly low white birth rate, being in 1925 only 15.5. The highest birth rate is found in Group III almost equalling the colored rate in Group I.

In looking at the infant mortality rates we see that in each group they increase from 1924 to 1925. In the first two groups the increase was almost ten points while in the third group it was as great as twenty-three points. This last increase is scarcely accounted for by the slight decline in births. Here in turn you find the colored death rate practically double that of the white in Groups I and II. The colored population is so negligible in the third group as to vitiate the figures and render them of little importance. It is interesting to note that in Group I the increase in white infant death rate was greater than that of the colored so that instead of doubling the white rate the colored rate was only one-half as large.

Group II has the lowest mortality rate, while Group I has the highest. The reporting of births and deaths is presumably as good in one section as in the other.

In the following table some of the principal causes of infant deaths are listed with their rates for the two years. The rate is calculated

TABLE I.

	GROUP I			GROUP II			GROUP III		
	TOTAL	WHITE	COL'RD	TOTAL	WHITE	COL'RD	TOTAL	WHITE	COL'RD
POPULATION.....	186,800	90,300	96,500	62,000	38,000	24,000	49,000	44,500	4,500
PERCENTAGE.....		49	51		61	39		90	10
POPULATION PER SQUARE MILE...	59			77			19		
BIRTH RATES:									
1924.....	26.9	17.9	34.5	21.0	17.3	26.8	29.6	30.0	24.4
1925.....	23.6	15.5	30.4	20.8	17.2	26.4	28.2	28.4	25.7
NUMBER OF BIRTHS:									
1924.....	4,947	1,614	3,333	1,304	658	646	1,453	1,342	111
1925.....	4,336	1,399	2,937	1,291	653	638	1,386	1,269	117
INFANT MORTALITY RATES:									
1924.....	91	53	109	64	48	80	69	66	99
1925.....	100	75	112	74	52	112	92	88	136
NUMBER OF INFANT DEATHS:									
1924.....	451	86	365	84	32	52	101	90	11
1925.....	439	106	333	106	34	72	128	112	16

TABLE II.

CAUSES OF DEATH	GROUP I		GROUP II		GROUP III	
	RATE		RATE		RATE	
	1924	1925	1924	1925	1924	1925
Congenital causes.....	29.9	29.9	29.9	35.6	24.7	36.0
Intestinal diseases.....	16.3	23.9	6.1	12.3	10.3	10.1
Respiratory diseases.....	11.1	14.2	9.1	11.6	6.8	10.8
Malformation.....	4.0	3.2	5.3	6.9	10.3	8.6
Malaria.....	.2	.2				
Measles.....	1.2	.6			.6	.7
Whooping Cough.....	6.0	3.6	3.0	3.8	3.4	7.9
Diphtheria.....	.4	.6		.7		1.4
Tuberculosis.....	.2	.9	.7			2.1
Syphilis.....	.8	.9	.7	.7		2.1
Accidents.....	2.2	1.1	3.7		2.6	1.4
Unknown.....	11.5	13.8	2.2	6.2	4.8	2.8

by deaths under one year per 1,000 living births.

A word of explanation is necessary to explain the grouping of these causes. Under congenital causes are included congenital debility, premature births, injury at births and other diseases peculiar to early infancy. Under intestinal diseases are included dysentery, diseases of the stomach, diarrhea and enteritis. Under respiratory causes of death are listed influenza, acute bronchitis, bronchopneumonia and other pneumonias. Under tuberculosis are included not only pulmonary but meningal,

intestinal and disseminated types. The accidents are composed largely of suffocation. The group of unknown is included because it is rather large although no diagnosis has been made.

From this table we will see that the congenital causes of death are far in the lead. In the three groups it is practically at the same level. In the first group it remained the same for the two years, while in the other two groups it showed a marked increase, as much as eleven points in Group III.

In Group I the next highest cause of death

was from intestinal diseases. These showed a marked increase from 1924 to 1925 with nearly a 50 per cent rise. In Group II the intestinal diseases rate was not so great but it doubled in 1925 gaining second place in the causes of death for that group. There was no increase in Group III.

Excluding the unknown causes of death the respiratory diseases rated third in Group I, while in Group II they ranked second in 1924, and third in 1925, and in Group III third in 1924 and second in 1925.

It is interesting to note the high toll of lives whooping cough takes. Judging from the reports of various studies on neonatal deaths, the deaths reported due to syphilis undoubtedly are much underestimated, and many in the congenital group should rightly belong to the syphilitic.

Contrasting the three groups it is seen that Group I has a higher death rate in the respiratory diseases and the intestinal diseases, especially the latter, being more than double that of each Group II and Group III. Malaria is given as the cause of death here though not in the other two groups. The unknown causes far exceed those of the other two groups. Group III leads in the number of deaths due to malformation; also its whooping cough death rate is highest in 1925 by a good margin.

Table III gives an idea of the distribution of the main causes of death by ages and color.

In a study of Table III several facts are observed. In Group I the number of colored deaths far exceed those of the white. In Group II the number of white deaths equals that of the colored in congenital causes, malformation and diphtheria.

As would be expected deaths from congenital causes and malformations occur under one year, and in this period are also a large per cent of the unknown causes. Almost consistently the large majority of deaths up to five years occur under one year of age. However, between one to five years there are a substantial number of deaths attributable to the intestinal diseases, the respiratory group, whooping cough, diphtheria, tuberculosis and accidents.

Since the population figures for the several groups are so dissimilar, rates give the only basis for comparison.

TABLE III.

CAUSES OF DEATH	GROUP I						GROUP II						GROUP III					
	1924			1925			1924			1925			1924			1925		
	Under One Year		One to Five Years	Under One Year		One to Five Years	Under One Year		One to Five Years	Under One Year		One to Five Years	Under One Year		One to Five Years	Under One Year		One to Five Years
	W	C		W	C		W	C		W	C		W	C		W	C	
Congenital Diseases	33	115	2	49	80	39	20	26	2	32	4	1	44	6	12	1		
Intestinal Diseases	16	65	27	24	80	20	4	12	2	13	2	4	13	1	8	2		
Respiratory Diseases	5	50	22	5	57	8	1	14	1	9	1		12	3	3	1		
Malformations	10	10	1	4	10	1	5	4	2	14	1		12					
Malaria	1		1															
Measles	1	5	4	1	2	2				1		1			3			
Whooping Cough	4	26	13	5	11	7		5		5				3	2			
Diphtheria	1	1	4		3	4		1	2			3		2	3			
Tuberculosis		1	4		4	3			1					1	1			
Syphilis		2	2		4			1						2				
Accidents	2	9	7	2	3	26	1		4	3	1	2	3	1	2	4		
Unknown	6	53	14	8	56	8	1	6	2	7			3	1	3	3		

SUMMARY

1. The infant mortality rate increased in 1925 from 77 to 80.

2. There was a decline in birth rates from 1924 to 1925.

3. In Groups II and III there was an actual increase in number of deaths so that the decline in the number of births would account only in part for the increased death rate.

4. The colored death rate in each instance is much higher than that of the whites.

5. The congenital causes of death rank highest; these deaths occur under one year.

6. Considering the deaths up to five years the large majority occur under one year; however the acute contagious and the intestinal diseases show a substantial number of deaths between one to five years.

CONCLUSIONS

From this study it would seem that to lower the general death rate of the State, the child furnishes a strategic point of attack, particularly the infant under one year.

As has been seen the congenital causes of death rank highest. Among these causes the premature births lead, with a second in the congenital debility group. So far as is at present known the only way in which these deaths may be prevented is by more thorough prenatal and postnatal instruction and care for a greater number of mothers. There is grave doubt whether a generalized educational program, or for that part a diffuse maternity and infancy program, affects favorably this cause of death.

Since in some of these factors, such as the congenital causes of death, malformation and accidents, we are still rather helpless, in the case of intestinal diseases which is the second highest cause of death we feel that it lends itself more easily to preventive measures and therefore needs particular consideration and careful analysis.

Table II shows for this cause an increase in the death rate of approximately 50 per cent in Group I and 100 per cent in Group II. The decline in birth rate by no means explains this as the figures in Table III show that in Group I there was a large increase in actual number of deaths, this increase being not only in the group under one year of age but also in the one to five year old group. Group II also shows a decided increase in number of

deaths under one year, but a decrease in the group of one to five years. In Group III the deaths under one year are approximately the same but there was a definite increase in the years one to five.

If one compares the counties in Group I with those of Group III it seems probable that the general sanitation in Group I is better than that of Group III, but in spite of this we find the death rate from intestinal diseases more than twice as high in Group I and in Group III. Judging from the figures in Table III the difference in proportion of the two races may be a factor of outstanding importance. It seems probable that breast feeding is carried out more generally among the colored than among the white race though there are no definite figures available to establish this point.

The causes of the increase in the intestinal group of diseases in the southeastern part of the State would seem to need real study.

MALNUTRITION OF CHILDHOOD.*

By W. AMBROSE McGEE, M. D., Richmond, Va.

The large number of children that are victims of malnutrition is astonishing. Fortunately, physicians, especially pediatricians, are rendering great service to undernourished children, and the number of those definitely malnourished is decreasing yearly. In the public schools of Richmond there has been an impressive reduction in children so affected, for, while in 1923 the percentage of malnourished school children was 23 per cent, it fell to 11.9 per cent in 1927. Still, the percentage of underweight children at all ages is much higher than it should be, and in order to reduce it materially, physicians must have the active co-operation of parents, especially mothers. In order to gain the support of mothers it is the duty of those practicing among children to explain fully, but with the avoidance of medical terms, the significance of malnutrition and how to overcome it.

An underweight child is usually an unhealthy one, while, conversely, those of normal or average weight are seldom ill. Malnutrition greatly predisposes children to all kinds of diseases. By keeping them free from malnutrition we are protecting them from many unnecessary illnesses. The state of a

*Read before the Federation of Mother's Clubs and Parent-Teacher Associations in Richmond, May 5, 1927, during National Child Health Week.

Also read by request over WBL Radio Station, Richmond, Va., May 10, 1927.

child's nutrition is, in general, a very good index of his health.

To diagnose malnutrition only a simple equipment is needed, namely, a pair of scales, preferably the balance type, a measuring rod, and a table of standards, particularly the one compiled by the American Child Health Association. It is no doubt evident that to do this does not require any medical training or skill. That is true, but to overcome the malnutrition a competent and thorough physician is needed. No one should attempt to treat undernourished children without first making a careful study of the child's entire life history, his habits, daily hygienic routine, diet, and environment and a thorough physical examination.

Only those children that are 10 per cent or more under the standard for height and age are considered as definitely undernourished, but generally it is better not to be underweight at all. Weight alone should not be the only criterion of nutrition, but that plus the elements that make up the child's weight, namely muscle, fat, and bone. The latter is only infrequently a factor in weight variation while muscle and fat are commonly concerned with undernourishment.

Malnutrition is usually considered to consist of two types,—one in which there is an apathetic, listless and pale child who has round shoulders, poorly developed muscles and a bad posture; the other is the overactive child who is restless, never still and easily excited; his muscles are well developed but fat is generally sparse.

The solution of the malnutrition problem is dependent upon the finding of the cause of ill health, and then the removal or correction of it. In order to accomplish this, a careful physical examination must be given, and inquiry should be made into the child's life history, daily habits, usual diet, family conditions and environment. In addition, an examination should be made of the child's blood and urine and occasionally of his stools.

A carefully taken history may reveal the fact that the child's growth is the result of prematurity or unusual smallness at birth, or that he has been subjected to repeated digestive or respiratory disorders. All of these factors are antagonistic to good health. Perhaps the family history may be of some value in revealing parents or grandparents of small stature or

general physical weakness, but as a rule this is of no great significance. It is usually noted that children who are well fed and carefully raised are generally larger and heavier than their parents. Heredity affects height more than weight.

The more frequent causes of malnutrition are present defects or disease, bad hygienic conditions, improper diet and social factors.

Such gross defects as decayed teeth, greatly enlarged tonsils, skin diseases, and bad posture can be readily seen by nurses, social workers and teachers. They may also observe certain common symptoms of disease, as shortness of breath, palpitation, hoarseness, mouth breathing, nervousness, etc., but medical training, especially training in children's diseases, is necessary to go beyond these findings. Decayed teeth serve as a source of chronic absorption of infection and they are apt to prevent perfect mastication of food. To combat such teeth a dentist should be consulted; he may or may not consider it necessary to remove the teeth. In addition, the proper kind of food is necessary to build better teeth. Such food must contain calcium or lime (a mineral found abundantly in milk, carrots and leafy vegetables) and vitamin D which is concerned with the formation of bone and teeth. Foods rich in that vitamin are cod-liver oil, cream, and butter. Cleanliness and the proper diet will prevent decayed teeth.

Enlarged or infected tonsils and adenoids also serve as a focus of infection, and are frequently the cause of colds, bronchitis, ear infections and "growing pains." Besides, they mechanically block air passing through the back part of the nose and give rise to mouth breathing, which is nature's way of getting more air into the lungs. When such is the case, the tonsils or adenoids or both should be removed. It is not necessary to wait till the child is four or five years old, for the operation can be safely and advantageously performed by a competent nose and throat specialist at any age.

Flat feet are usually overlooked. They can give rise to discomfort in any part of the lower extremities and in that way prevent proper exercise. Likewise, muscular development is hindered by poor posture.

Eye strain or deafness often affect the nervous system and because of that may be a causative factor of undernourishment.

Mental defects are occasionally associated with malnutrition. When such is suspected, mental tests should be given.

Occasionally a chronic appendicitis appears to be the source of trouble in an undernourished child.

When any of the defects mentioned are found they should either be remedied or removed. In addition, it would be wise to have a skin test for tuberculosis made on underweight children.

Of the present diseases associated with malnutrition, tuberculosis of the glands is the most frequent cause. Tuberculosis in children is an infection of the glands and not of the lungs as in adults. The skin test for tuberculosis tells us whether or not the child has been infected with the disease; it is of value at any age below adolescence. There is no danger to the test and it often furnishes valuable information. A combination of intermittent low grade fever and a positive skin test usually means tubercular activity. When there is malnutrition with those symptoms, especially if there is a history of tuberculosis or a chronic cough among parents or near relatives or those handling the child, an X-ray of the chest is advisable, as it will show the extent of the activity in the glands. When a positive diagnosis of tuberculosis is made, the child, if of school age, should be taken out of school and then be put to bed for weeks to months, be fed nutritiously, and given an abundance of sunshine and fresh air. Only after there is a gain in weight, absence of fever, and a general physical improvement should the child be permitted to get out of bed.

Other diseases that are associated with undernourishment are diseases of the heart, lungs, and kidneys, diabetes, syphilis, asthma, malaria, intestinal parasites as round and hookworms and a few other conditions. After the cause is located, active treatment should be begun.

Under the class of bad hygiene and improper diet that are causes of malnutrition are such factors as insufficient or improper food, constipation, irregular or bad meal habits, lack of sufficient sleep, rest, fresh air or exercise, overexertion, and uncleanness.

A great many thin children will be found to take too little food. The immediate cause may be poverty or poor selection of food, but it usually is due to improper training or care-

less parents or spoiling by over-anxious ones. Just as an engine has to have sufficient amount of gasoline and oil to run properly, a child requires an ample amount of food to grow properly.

Improper food is a very frequent cause of underweight. Perhaps the most common fault in the diet is the use of tea and coffee. A child naturally has a sensitive nervous system, and to stimulate it further with tea and coffee is detrimental and besides, those stimulants are usually used in place of the most perfect food, namely milk. Fried food is a poor way to prepare food for children as it too greatly taxes their digestion. It frequently happens that the children of today have entirely too much money to spend promiscuously and they eat entirely too much candy, cakes, pastries, etc. Such food frequently destroys one's appetite for the coming meal. Fruits when properly ripe are excellent when taken in moderation with meals, but when eaten at any time, or if green or over-ripe, are apt to give rise to some digestive upset. Pickles, olives, nuts, and preserves serve as a burden to digestion more than their food value justifies their use. Too much bread or butter or more than one quart of milk daily are apt to cause a child to limit his selection of other foods since his stomach is full, and in this way an unbalanced diet results. Excess of meat is too great a tax upon digestion, but in moderation is of much value, especially to furnish muscle tissue and iron.

A proper diet is one that contains sufficient amounts of all of the necessary food elements—carbohydrates, fats, proteins, minerals, and vitamins. Carbohydrates and fats furnish fuel and energy for the body; proteins are tissue or structure builders, as muscles; minerals or salts are needed to build bones, teeth, and to regulate function of different organs. Vitamins are regulatory also.

Too little mastication or too rapid eating or washing down food with water or milk are bad habits frequently observed among children. Over-anxious mothers unintentionally are often the cause of slow eating or of their children playing with food, but little do mothers realize that. When only small amounts of food are taken as a result of such habits, marked malnutrition may result. Frequently these bad habits can be corrected if the child is ignored for a few days and not forced to eat each mouthful. Such treatment

often makes mothers frantic for fear the child will starve, but if she will persist in paying no attention to her child, he will soon realize he is no longer the center of attraction, and he will then begin to eat as he should. If this measure fails to work, placing the child in the hands of someone else, as an experienced and kind but firm nurse or near relative, may be the means of over-coming the bad habits.

Regulation of the bowels is absolutely necessary in undernourished children, and when constipation is overcome there is frequently noted an improvement in appetite and weight and a disappearance of such symptoms as headache, lassitude, indigestion, etc.

Thin children are frequently found to get too little sleep. If the normal child requires ten to eleven hours sleep, naturally the undernourished one will need more rest. Next to food, sleep is the most important factor in a child's life. Daily rest periods should be continued till school age is attained, and longer in malnourished children.

Like food and sleep, fresh air is important and should be given especially at night, for the child spends nearly half of his time in bed. Window sashes should be opened both top and bottom. Of course, the child should not be in a draught. As much time as possible should be spent out of doors during the day. Unfortunately, this is so often neglected; especially is this true with girls, for, after spending the day in school, the entire afternoon is taken up with dancing and music lessons. The child of today is thus kept on the go from morning till night as if he or she were an adult. Those undernourished and having evenings occupied with other lessons should drop all training other than school and spend that time out of doors and resting.

A very common cause of malnutrition is over-exertion, and that gives rise to early fatigue. Likewise in those children with poorly developed muscles, exhaustion results quickly. In the former instance, the amount of exercise should be curtailed, while in the latter case a gradual systematic series of physical exercises and posture drills will aid greatly.

Cleanliness promotes good health and decreases the danger of taking germs into the mouth. Clean teeth decay less easily than dirty ones.

Not infrequently social conditions play an important role in malnutrition. The factors

concerned are insufficient income, unintelligent buying and personality of the parents.

When malnutrition is due to lack of funds, no great improvement can be expected unless outside financial relief is possible. In selecting foods, mothers should consider that money spent on tea or coffee is wasted; it should have been spent for milk.

The personality, habits, intelligence, and mental attitude of parents influence greatly the child. There should be no irritation or loss of temper on the part of the parents before their children, for such conditions have a very bad effect on the nervous system of children. Whatever the parents eat the child is apt to eat, so parents should try to eat a great variety of foods and they should never mention any disagreeableness of foods before their children.

It is, indeed, unfortunate that the public in general thinks that all an undernourished child or one easily fatigued needs is a tonic. The mysterious tonic factor has been the root of all evil in preventing good results in malnutrition. One can easily realize the fallacy of using some kind of tonic when the cause of the malnutrition is not known. It is only when the cause of the condition is located that we can hope for any great amount of success in over-coming malnutrition.

For the past few years, infant welfare stations and pediatricians have rendered great service in combating the malnutrition problem by starting infants in the right path from birth. If the rules of the game of health, as devised by the American Child Health Association, are followed, much improvement will follow in malnourished children, and others are less apt to fall victims of the condition. The rules of the game are—

Brushing the teeth at least once every day.

A full bath more than once weekly.

Drinking as much milk as possible, but no tea or coffee.

Eating some vegetables or fruit every day.

Drinking at least four glasses of water a day.

A bowel movement every day.

Playing part of every day out of doors.

Sleeping long hours with windows open.

West End Medical Building.

Proceedings of Societies

MINUTES OF THE FIFTY-EIGHTH ANNUAL MEETING OF THE MEDICAL SOCIETY OF VIRGINIA

Petersburg, October 18, 19, and 20, 1927.
General Sessions

TUESDAY, OCTOBER 18, 1927.

The Medical Society of Virginia met in general session in the main auditorium of the Petersburg High School, at 8:00 P. M., and was called to order by Dr. J. Bolling Jones, Chairman of the Committee on Arrangements.

The invocation was said by the Reverend J. M. B. Gill, Rector of St. Paul's Episcopal Church, Petersburg.

The Chairman introduced the Mayor of Petersburg, Honorable Gordon Bohannon, who delivered the address of welcome.

The President of the Society, Dr. J. Shelton Horsley, of Richmond, was introduced by the Chairman and read his presidential address, entitled "The Medical Profession of Virginia."

The President then assumed the chair.

While the audience stood, the names of members of the Society whose deaths have been reported since the 1926 meeting were read.

List of Members of the Medical Society of Virginia Whose Deaths Have Been Reported Since the 1926 Meeting.

Dr. John Wilkins Brodnax, Richmond, Va., October 20, 1926.

Dr. James M. Gibson, Suffolk, Va., October 10, 1926.

Dr. William P. McGuire, Winchester, Va., November 15, 1926.

Dr. Edward Dabney Starke, Norfolk, Va., November 21, 1926.

Dr. Isaac Webb Surratt, Belspring, Va., October 20, 1926.

Dr. Walter Cox, Winchester, Va., January 16, 1927.

Dr. John T. B. Hyslop, Belle Haven, Va., January 7, 1927.

Dr. Hampden Aulick Burke, Petersburg, Va., January 13, 1927.

Dr. Alvin Davies Lamberth, Newport News, Va., January 24, 1927.

Dr. Frederick M. Hisey, Edinburg, Va., December 22, 1926.

Dr. E. H. Henderson, Marion, Va., February 25, 1927.

Dr. Thomas Clinton Firebaugh, Harrisonburg, Va., January 12, 1927.

Dr. Harry M. Tayloe, Hague, Va., April 21, 1927.

Dr. McMinn M. Pearson, Bristol, Va., April 9, 1927.

Dr. Leslie C. Brock, Smithfield, Va., May 24, 1927.

Dr. Robert T. Glassell, Bowling Green, Va., June 4, 1927.

Dr. J. K. Simmons, Nace, Va., April 9, 1927.

Dr. Robert Madison Slaughter, Washington, D. C., June 3, 1927.

Dr. Charles Venable Carrington, Richmond, Va., July 22, 1927.

Dr. Robert Pollard Stryker, New Castle, Va., June 13, 1927.

Dr. Samplett Edgar Webb, Draper, N. C., July 7, 1927.

Dr. Sparrell Simmons Gale, Roanoke, Va., August 19, 1927.

Dr. Scott William Brewer, Singer Glen, Va., June 6, 1927.

Dr. E. W. Walker, Appalachia, Va., August 19, 1927.

Dr. George W. Stark, Simeon, Va., August 15, 1927.

Dr. Frank Stanley Hope, Portsmouth, Va., September 26, 1927.

Dr. Wade Hampton Saunders, Roanoke, Va., September 19, 1927.

Dr. John Wesley Bovee, Washington, D. C., September 3, 1927.

The President introduced Dr. J. M. T. Finney, of Baltimore, Md., who gave an address entitled "Some Reflections upon the Responsibilities of the Doctor."

Dr. W. A. Plecker, Director of the Bureau of Vital Statistics, State Board of Health, Richmond, read a paper entitled "The Physician's Part in Popularizing Breast Feeding and Reducing Infant Mortality."

Dr. Ennion G. Williams, Commissioner of Health, Richmond, read a paper on "The Policy of the State Board of Health in Regard to Tuberculosis," which was discussed by Drs. C. L. Harrell, Norfolk; Charles R. Grandy, Norfolk; and by Dr. Williams in closing.

The Society then adjourned until Wednesday morning.

WEDNESDAY, OCTOBER 19

The Society met in the main auditorium of the Petersburg High School and was called to order by the President at 10:10 A. M.

A gavel made of wood from Pine Gardens, the site of the Confederate underground tunnel, was presented to the President by Dr. W. C. Powell, of Petersburg.

The following papers were read as a symposium on Diseases of the Kidney:

"Physiology of the Kidney"—Dr. C. C. Haskell, Richmond.

"Diagnosis (Laboratory and Clinical) of Diseases of the Kidney"—Dr. F. C. Rinker, Norfolk.

"Medical Aspects of Diseases of the Kidney"—Philip S. Smith, Abingdon.

"Surgical Aspect of Diseases of the Kidney"—Dr. J. M. Robinson, Danville.

These papers were discussed by Dr. Joseph F. Geisinger, Richmond, and in closing by Drs. Haskell and Smith.

Dr. A. I. Dodson, Richmond, gave an illustrated address on "Tumors of the Bladder."

A paper entitled "Ureteral Spasm and Stricture; Their Clinical Significance," was read by Dr. Linwood D. Keyser, Roanoke.

Dr. Lawrence T. Price, Richmond, read a paper entitled "Report of an Unusual Case of Calculus in the Bladder."

Dr. John H. Neff, University, gave an illustrated address on "Chronic Pyuria in Children; Findings in a Series of Cases."

Dr. W. Ambrose McGee, Richmond, read a paper on "Clinical Observation of Pyuria in Infancy and Childhood; an Analysis of Thirteen Consecutive Cases."

The above five papers were discussed by Drs. Herbert C. Jones, Petersburg; Charles E. Conrad, Har-

risonburg; and W. B. McIlwaine, Petersburg; and in closing by Drs. Dodson, Keyser, Price, Neff, and McGee.

The morning session then adjourned.

WEDNESDAY AFTERNOON SESSION.

The Society met in the main auditorium of the Petersburg High School, at 2:35 P. M., and was called to order by the President.

Dr. William Edward Fitch, Buffalo Lithia Springs, read a paper on "The Mineral Water Resources of the State of Virginia and Their Therapeutic Properties," which was discussed by Dr. Mark Peyser, of Richmond.

Dr. K. D. Graves, Pearisburg, read a paper on "The Use of Smallpox Vaccine in the Treatment of Whooping Cough," which was discussed by Dr. St. George T. Grinnan, Richmond.

Dr. Bittle C. Keister, Washington, D. C., read a paper entitled "Mental Diseases, Viewed and Treated from Various Angles; Some Hereditary Forms Requiring Radical Treatment," which was discussed by Dr. R. L. Raiford, Franklin, and by Dr. Keister in closing.

At this time, Dr. J. Allison Hodges, Richmond, moved that the general session request the House of Delegates to appoint a committee to revise the constitution and by-laws adopted at the 1926 meeting in Norfolk. This motion was seconded and carried.

A paper on "Acute Traumatic Tuberculous Orchitis (Report of a Case)" was read by Dr. Nelson Mercer, Richmond, and was discussed by Drs. Dean B. Cole and Lawrence T. Price, of Richmond, and by Dr. Mercer in closing.

A paper on "Typhus Fever; Report of a Case in a Child," by Drs. St. George T. Grinnan and Manfred Call, of Richmond, was read by Dr. Grinnan.

Dr. Claiborne Willcox, Norfolk, read a paper entitled "Treatment of Diabetes in Young Children," which was discussed by Dr. M. S. Fitchett, Norfolk, and in closing by Dr. Willcox.

Dr. John S. Horsley, Jr., Richmond, read a paper entitled "End Results after Harelip Operations," which was discussed by Drs. W. H. Goodwin, University, and Clifton M. Miller, Richmond, and by Dr. Horsley in closing.

Dr. Wright Clarkson, Petersburg, gave an illustrated address on "Osteochondritis Deformans," which was discussed by Drs. Thomas F. Wheeldon, Richmond, and James W. Hunter, Norfolk, and in closing by Dr. Clarkson.

Dr. Warren T. Vaughan, Richmond, read a paper entitled "A Clinical Study of Hypotension," which was discussed by Dr. Walter B. Martin, Norfolk, and by Dr. Vaughan in closing.

Dr. Elbyrne G. Gill, Roanoke, read a paper on "Foreign Bodies in the Air and Food Passages," which was discussed by Drs. W. Wallace Gill, Richmond, A. L. Gray, Richmond, and James W. Hunter, Norfolk.

Dr. Robert C. Whitehead, Norfolk, read a paper entitled "Agranulocytic Angina; Report of One Case Occurring in Man," which was discussed by Dr. Walter B. Martin, Norfolk.

The paper of Mr. Wortley F. Rudd, Ph. G., Richmond, entitled "Chemistry and Medicine," was read by title.

Dr. R. D. Glasser, Norfolk, read a paper on "Carcinoma in the Lymph Glands of the Groin with No Evidence of Primary Tumor," which was discussed by Dr. E. C. S. Taliaferro, Norfolk.

The afternoon session then adjourned.

WEDNESDAY EVENING SESSION.

The Society met in the main auditorium of the Petersburg High School at eight P. M. and was called to order by the President, Dr. Horsley.

The President introduced the first speaker of the evening, Dr. Wilburt C. Davison, Dean of the Duke University Medical School, Durham, N. C., who gave an illustrated address on "Empyema in Infants under Two Years of Age."

Dr. Horsley then introduced the next speaker, Dr. Stewart Roberts, Atlanta, Ga., who read a paper entitled "The Rheumatic Heart."

The last speaker, Dr. M. L. Harris, Chairman of the Judicial Council of the American Medical Association, Chicago, Ill., was introduced by the President and read a paper entitled "Medical Economics."

The evening session then adjourned.

THURSDAY, OCTOBER 20

The Society met in the main auditorium of the Petersburg High School and was called to order by the President at 10 A. M.

Dr. Frank Helvestine, Jr., Roanoke, read a paper entitled "Bile Peritonitis," and Dr. Murat Willis, Richmond, read a paper entitled "The Importance of Differentiating Abdominal Symptoms in Some Cases of Angina Pectoris from Upper Abdominal Surgical Lesions, Especially Cholecystitis." These papers were discussed by Drs. J. Morrison Hutcheson, Richmond, and W. H. Goodwin, University; and in closing by Dr. Willis.

Dr. G. Paul LaRoque, Richmond, read a paper entitled "A Single Incision for the Operation for Abdominal Hernia, Appendectomy, and Pelvic Diseases," which was discussed by Dr. Lowndes Peple, Richmond.

The following four papers were then read:

"The Treatment of Prolapse of the Uterus in Elderly Women," by Dr. Charles R. Robins, Richmond.

"The Uterine Cervix," by Dr. R. L. Raiford, Franklin.

"The Eroded Cervix," by Dr. Southgate Leigh, Norfolk.

"The Treatment of Cervicitis and Endocervicitis by Intracervical Injections of Mercurochrome," by Drs. Frank Helvestine, Jr., and F. A. Farmer, Roanoke (read by Dr. Farmer).

These papers were discussed by Drs. W. H. Goodwin, University; A. S. Brinkley, Richmond; J. Kennedy Corss, Newport News (discussion filed unread); Charles Phillips, Richmond; Greer Baughman, Richmond; and C. J. Andrews, Norfolk; and in closing by Drs. Robins and Raiford.

Dr. Greer Baughman, Richmond, read a paper entitled "A Preliminary Report upon the Midwife Situation in Virginia," which was discussed by Dr. Mary E. Brydon, Richmond, and in closing by Dr. Baughman.

Dr. C. C. Coleman, Richmond, read a paper entitled "The Diagnosis of Surgical Lesions of the Spinal Cord," which was discussed by Dr. Beverly R. Tucker, Richmond, and by Dr. Coleman in closing.

Dr. F. S. Johns, Richmond, read a paper on "The Operative Treatment of Pulmonary Tuberculosis," which was discussed by Drs. Dean B. Cole, Richmond; W. E. Brown, Sanatorium; and J. Shelton Horsley, Richmond.

The morning session then adjourned.

THURSDAY AFTERNOON SESSION.

The Society met in the main auditorium of the Petersburg High School at 2:30 P. M. and was called to order by the President.

A paper entitled "Five Years' Treatment of Dia-

betes with Insulin," was read by Dr. E. G. Hill, Richmond.

Dr. Wilbur M. Bowman, Petersburg, read a paper entitled "Diabetic Cellulitis of the Face; Report of a Case," which was discussed by Dr. George H. Reese, Petersburg.

The paper by Dr. L. E. Stubbs, Newport News, Va., on "Relation of Infection of the Biliary Tract to the Pathogenesis of Diabetes Mellitus: The Age and Sex Factors in One Hundred Diabetic Patients," was read by title.

Dr. William H. Goodwin, University, Virginia, read a paper on "Von Recklinghausen's Neurofibromatosis, with Report of Cases." This paper was discussed by Dr. John S. Horsley, Jr., Richmond.

It being 3:30, the time set for the report of the House of Delegates, the report was read by Miss Agnes V. Edwards, Secretary and Business Manager, as follows:

Report From the House of Delegates

The House of Delegates, in addition to its usual routine business (a full account of which appears under the Business Sessions in this issue of the *Virginia Medical Monthly*) moved the adoption of the report of the Executive Council which called for the appropriation of \$100.00 to be used annually for the legitimate expenses of the Committee on Scientific Exhibits. A motion to increase the salary of the Executive Secretary-Treasurer to \$3,600.00 a year was also adopted.

The Secretary's report showed a total of 1,840 members at this time, an increase of 22 on last year's enrollment. The financial report from January 1 to October 17, 1927, showed receipts to have been \$13,867.74 and disbursements for the same time to have been \$12,347.84, of which \$1,000.00 was invested in a real estate note bearing 6% interest. With the balance brought forward January 1, 1927, the Society now has \$10,624.75, of which \$6,000.00 is invested at 6%. Of this, there is available for legal defense \$7,551.14 and for operating expenses \$3,073.61. In addition to regular expenses, during the year we have paid out \$400.00 for the legal defense of four members, \$1,000.00 plus cost for examining title and recording deed for the Walter Reed Home, in Gloucester County, Virginia, in accordance with resolution adopted at our last meeting, and have also paid the \$300.00 authorized for a marker over the grave of Dr. J. P. Mettauer, near Hampden-Sidney, Va.

At this meeting, a motion was adopted to appropriate an amount not exceeding \$150.00 to place a bronze marker on the birthplace of Dr. Ephraim McDowell, in Rockbridge County, Virginia. Drs. E. P. Tompkins, O. H. McClung and M. T. Vaden were appointed a committee in charge of this work.

In accordance with resolution adopted at the general session on Wednesday, the House voted that the president should appoint a special committee for the purpose of revising the recently adopted constitution and by-laws.

The following officers were elected by the House of Delegates for the ensuing year: President, Dr. J. W. Preston, Roanoke; president-elect, Dr. J. Bolling Jones, Petersburg; executive secretary-treasurer, Miss Agnes V. Edwards, Richmond. It was moved, seconded and carried that, as councilors from the even numbered districts should be elected in the even numbered years, the present incumbents in the 2nd, 4th, 6th, 8th and 10th districts should remain in office for one year. The following councilors were elected for a term of two years:

1st District, Dr. R. D. Bates, Newtown.

3rd District, Dr. L. T. Price, Richmond.

5th District, Dr. I. C. Harrison, Danville.

7th District, Dr. Hunter H. McGuire, Winchester.

9th District, Dr. C. B. Bowyer, Stonega.

Dr. Southgate Leigh was re-elected delegate to the American Medical Association for a term of two years; Dr. J. W. Preston holds over; and Dr. Murat Willis, Richmond, was elected to fill the unexpired term of Dr. Stuart McGuire, resigned.

Danville was selected as the next place of meeting and dates set as October 16, 17 and 18, 1928.

A rising vote of thanks was extended the Dinwiddie County Medical Society, the citizens of Petersburg, and the Petersburg High School for the delightful entertainment given us in Petersburg.

Upon motion this was received and adopted.

The President announced that the golfing cup donated four years ago by the Roanoke Academy of Medicine had been won by Dr. Thomas W. Murrell, of Richmond. He stated that, as Dr. Murrell had won the cup once previously, he now became the owner of it. The prizes offered for the lowest and second lowest scores were won by Drs. R. H. Dubose, Roanoke, and Manfred Call, Richmond.

Dr. William H. Higgins, Richmond, read a paper entitled "Bacillary Dysentery in Virginia, with Report of Cases," which was discussed by Dr. J. E. Warinner, Richmond.

The paper of Drs. Dewey Davis and Douglas VanderHoof, Richmond, entitled "The Value of Histamine in the Differentiation of True and False Gastric Anacidity," was read by Dr. Davis and was discussed by Dr. S. W. Budd, Richmond, and in closing by Dr. Davis.

Dr. J. G. Lyerly, Richmond, read a paper entitled "The Significance of the Dilated Pupil in Acute Brain Injuries," which was discussed by Dr. J. Emory Hill, Richmond, and in closing by Dr. Lyerly.

A paper on "Drug Eruptions," was read by Dr. Richard W. Fowlkes, Richmond, and was discussed by Dr. William H. Higgins, Richmond.

Dr. J. L. Harvey, Simpsons, being absent when called, his paper on "The Power of Suggestion in the Practice of Medicine and in the Home, Schools and Community," was read by title.

Dr. W. Randolph Graham, Richmond, read a paper entitled "Hydrogen-ion Concentration of the Intestinal Tract," which was discussed by Dr. Warren T. Vaughan, Richmond.

Dr. G. A. Ezekiel, Richmond, read a paper entitled "The Study of the Histories of One Hundred Chest Cases," which was discussed by Drs. Dean B. Cole, Richmond, and R. L. Raiford, Franklin.

Induction of New President

Dr. Horsley: We come now to a very pleasing point in our program, something that will repay us for a day of listening strenuously to papers. We have before us not the induction of one president but perhaps we might say of a president and a half. It has fallen to my very pleasant lot, after having a good program with distinguished guests, to introduce two presidents at one time. I think that has never happened before in our Society. Our President-Elect has his work cut out for him by the new constitution and by-laws and Miss Edwards before he assumes office next year. I wish to appoint a committee consisting of Dr. Lawrence Price and Dr. Higgins to escort Dr. Preston to the stage and another committee (it will take an awfully strong and husky one) of Dr. Raiford and Dr. E. J. Nixon to escort Dr. Jones.

I think the Medical Society of Virginia is to be congratulated on these two elections. I think the

affairs of your society can not be in better hands than the hands of Dr. Preston, with the fine and sunshiny presence of the President-Elect in the offing, ready to take charge at any time and hold up the hands of your president.

All of you know Dr. Preston, who has probably done more for medical education in Virginia, as secretary of the State Board of Medical Examiners than anyone else in the state. I introduce Dr. J. W. Preston, of Roanoke.

Dr. Preston: Gentlemen of the Medical Society of Virginia, you are tired, and I do not want to detain you; but I do want to thank you for the honor you have conferred upon me. I keenly recognize the fact that as I assume the responsibilities of the presidency of the Medical Society of Virginia this is the oldest state in the Union and this organization is among the first organizations of its kind in the United States. It is an organization to which we owe very largely the proud position that we hold among the other states of the Union as a medical profession. I can not help but think of the men who have held this position ahead of me—the McGuires, the Martins, our honored Dr. George Ben Johnston, and the man whom I immediately succeed, who I feel has done as much to keep alive the fire of scientific work and scientific research as any man who has honored the position. (Applause.) I am also keenly alive to the importance or rather to the fact that many think we are now at a turning point in medicine in this country, that possibly we may be at the parting of the ways, the fact that the economic conditions of the country are making it harder and harder every year in every business, in every profession, for men to obtain the necessities of life, and these conditions have fallen hard upon the medical profession. For that reason many think that we are tending to commercialism and that the time may not be far distant when medicine will be a trade or an occupation. However that may be elsewhere, I feel that the traditions and the idealism of Virginia will carry us on and that we shall pass over the rough road and yet the things that we treasure and hold dear in the medical profession will live and will increase as time passes. It will be my pleasure to do all in my power to foster these things, but I am going to lean heavily upon you; I am going to ask the help of every man in the state to maintain these things and particularly of the men whom I have selected as members of the different committees and who will have direct charge of certain matters. If I may be permitted, I will now read the list of these names.

Standing Committee Appointed by Dr. Preston, President

SCIENTIFIC WORK: Dr. John S. Horsley, Jr., Richmond, *chairman*, and Drs. Charles Phillips, Richmond; H. E. Jordan, University; W. R. Whitman, Roanoke, and J. B. Nicholls, Catawba Sanatorium.

PUBLIC POLICY AND PUBLIC HEALTH: Dr. L. T. Price, Richmond, *Chairman*, and Drs. H. U. Stephenson, Richmond; P. St. L. Moncure, Norfolk; J. M. Emmett, Clifton Forge, and E. G. Williams, Richmond.

PROGRAM AND PUBLICATION: Dr. Alex. G. Brown, Jr., Richmond, *chairman*, and Drs. A. L. Gray, Richmond; Paul W. Howle, Richmond; E. L. Kendig, Victoria, and Beverley R. Tucker, Richmond.

MEDICAL DEFENSE AND MEDICAL ECONOMICS: Dr. L. T. Price, Richmond, *chairman*, and Drs. J. A. Hodges, Richmond; John O. Boyd, Roanoke; P. B. Pulman, Alexandria, and E. C. S. Taliaferro, Norfolk.

MEDICAL EDUCATION AND HOSPITALS: Dr. J. Alli-

son Hodges, Richmond, *chairman*, and Drs. Murat Willis, Richmond; Clarence Porter Jones, Newport News; Southgate Leigh, Norfolk, and Lawrence T. Royster, University.

MEMBERSHIP: Dr. J. A. White, Richmond, *chairman*, and Drs. Charles E. Conrad, Harrisonburg; A. M. Showalter, Christiansburg; James W. Smith, Hayes Store, and H. W. Porter, Louisa.

ETHICS AND JUDICIARY: Dr. William F. Drewry, Petersburg, *chairman*, and Drs. W. L. Peple, Richmond; A. F. Robertson, Jr., Staunton; Bernard H. Kyle, Lynchburg, and F. H. Smith, Abingdon.

Special Committees

WALTER REED COMMISSION: Dr. E. C. S. Taliaferro, Norfolk, *chairman*, and Drs. Clarence Porter Jones, Newport News; Greer Baughman, Richmond; H. S. Hedges, University, and Garnett Nelson, Richmond.

TO INVESTIGATE TRAINING OF MIDWIVES IN VIRGINIA: Dr. Greer Baughman, Richmond, *chairman*, and Drs. J. Bolling Jones, Petersburg; Mary E. Brydon, Richmond; L. A. Calkins, University, and P. W. Miles, Danville.

TO INVESTIGATE PROBLEMS PERTAINING TO LABORATORY TECHNICIANS: Dr. Charles Phillips, Richmond, *chairman*, and Drs. J. D. Willis, Roanoke; R. D. Caldwell, Lynchburg, and W. B. Martin, Norfolk, and Mr. A. H. Straus, Richmond.

REVISION OF CONSTITUTION AND BY-LAWS: Dr. J. Allison Hodges, Richmond, *chairman*, and Drs. Charles R. Grandy, Norfolk, and J. Bolling Jones, Petersburg.

MEMORIAL TO DR. EPHRAIM McDOWELL: Dr. E. P. Tompkins, Lexington, *chairman*, and Drs. O. Hunter McClung, Lexington, and M. T. Vaden, Buena Vista.

CANCER EDUCATION: Dr. J. Shelton Horsley, Richmond, *chairman*, and Drs. Hugh Trout, Roanoke; S. W. Budd, Richmond; Southgate Leigh, Norfolk, and Stephen Watts, University.

I am sure we should like to have a word from our President-Elect.

Dr. J. Bolling Jones: Gentlemen, I feel very much touched by this honor. I can frankly state that I never anticipated occupying such a position. At the age of fifty-six I am to assume once more the position of an embryo, which is a delightful place when I know that it is an honorable position and when I know that you gentlemen have elected me. I am going to try to learn the new duties that are imposed on the president-elect, and I promise you my earnest effort to try and walk in the footsteps of so many presidents of this body that I have known and known intimately. It makes me feel very seriously my responsibilities. Particularly for the last ten years I have been following my good friend Dr. Preston, who it certainly delights me is to precede me. I have followed him in his work, and I am certainly glad that he now precedes me and that I shall still follow. I promise you that I will attempt to do everything I can during this next year to further the interests of the Medical Society of Virginia and to follow the constitution so far as it is laid down, and to aid Dr. Preston to further the interests of this body.

Dr. Horsley: We have had such a magnificent reception here and the courtesy has been so genuine that I can not help offering a motion that the scientific body rise and stand in token of our appreciation of the magnificent reception we have had here.

Dr. Preston: On behalf of the Society, I wish to express to the people of Petersburg our appreciation of the magnificent way in which we have been entertained here in this city.

The Society then adjourned to meet October 16-18, 1928.

BUSINESS SESSIONS.

The House of Delegates of the Medical Society of Virginia held its first regular meeting in the Petersburg High School, Petersburg, Va., at 4 P. M., October 18, 1928. The meeting was called to order by the President, Dr. J. S. Horsley, of Richmond, who introduced Dr. M. L. Harris, Chairman of the Judicial Council of the American Medical Association.

Dr. Harris spoke on the relations of the State Society to the American Medical Association. He brought out the fact that each County Society should be the judge of its own members. He gave a most comprehensive scheme of organization of State and County Societies with reference to the American Medical Association.

Following this talk the roll was called. Thirty-eight members representing twenty-two counties were found present.

The Credential Committee composed of Dr. Fred Hodges, Chairman, Dr. J. M. Shackelford, and Dr. R. D. Tucker passed on the membership of the house.

The Secretary-Treasurer's report was read as follows:

Secretarial Report

To the President and Members of the House of Delegates:

At our 1926 meeting we reported a membership of	1,818
Since then we have lost by Death.....	28
Resignation	16
Dropped as lost or for non-payment of dues	17
	<hr/> 61

	1,757
New members enrolled since 1926 meeting--	83

Making a net gain of 22 members, or a total of 1,840

During the year we have been advised of meetings of the Executive Council and of several committees of the Society. Chairmen of some committees have reported activity in their committee work through correspondence.

"Belroi," the home of Dr. Walter Reed, in Gloucester County, Va., was purchased by the Walter Reed Commission for \$1,000 plus cost of examining title and recording deed, and was paid for out of the Society's funds in accordance with resolution adopted at our 1926 meeting.

Likewise, we have paid the \$300 appropriated at the last meeting for the erection of a suitable marker over the grave of Dr. John Peter Mettauer, near Hampden-Sidney, Va.

In addition to the four standing committees elected at last meeting and the special committees holding over, Dr. Horsley, president, appointed the following special committees: Hospital, Library, Necrological, on Co-operation with State Department of Health in Child Hygiene Work, on Co-operation with State Nurses' Association, Public Health and Education, Medical Education, Scientific Work, to Investigate Training of Midwives in Virginia, and to Investigate Problems Concerning Laboratory Technicians of the Medical Profession.

Upon death of Dr. Walter Cox, in January, the president appointed Dr. B. B. Dutton, Winchester, as councilor for the Seventh Congressional District.

He also appointed Dr. J. S. DeJarnette, Staunton, as chairman of the Hospital Committee to succeed Dr. S. S. Gale, deceased.

Your secretary attended meetings of several local societies, the Conference of Secretaries of Constituent State Medical Associations of the American Medical Association in Chicago, last November, expenses to which are paid by the A. M. A., and the meeting of the American Medical Association in Washington, D. C., last May.

During the year, we have paid out \$400 for legal defense of four members. Several other members applied for this defense but later stated their cases were settled out of court.

Drs. Southgate Leigh and J. W. Preston, regularly appointed delegates, and Dr. E. C. S. Taliaferro, alternate for Dr. Stuart McGuire, attended the Washington meeting of the American Medical Association as representatives from this Society.

Dr. J. S. Horsley, upon invitation, attended the meeting of the West Virginia State Medical Association to extend greetings from the Medical Society of Virginia.

We are pleased to announce that Dr. H. L. Brockmann, High Point, N. C., is regularly appointed delegate from the Medical Society of the State of North Carolina to our meeting this year.

We have been advised of the re-organization of Rockingham and Russell County Medical Societies, the former securing a charter. Alleghany-Bath County Medical Society secured a charter for the combined counties and Wise County Medical Society received a charter to replace one which could not be found.

We take pleasure in announcing the organization of two groups of counties into component organizations which have received charters in the names of the Mid-Tidewater Medical Society composed of the seven counties of Gloucester, King William, King and Queen, Middlesex, Essex, York and Mathews, and the second in the name of the Post-Graduate Medical Society of Southern Virginia composed of the seven counties of Nottoway, Dinwiddie, Prince George, Greensville, Brunswick, Surry and Sussex. Much credit is due Dr. James W. Smith, Hayes Store, in helping to organize the first group, and to Dr. Wright Clarkson, Petersburg, for his work on the latter.

We feel that we have had an unusually good year and that our members generally are manifesting a greater interest in our organization. We take this occasion to thank one and all for the co-operation which has been given us at headquarters. With a continuance of your interest and your help, the Society should have a bright year ahead.

AGNES V. EDWARDS,

Secretary.

Financial Report

The Secretary-Treasurer gave a statement as to receipts and disbursements from January 1, 1927, to date (incorporated in report to General Meeting on page 503, this issue of the *Monthly*), and stated that the annual report for 1926, which had been audited by a committee from the Executive Council, would appear in the printed minutes.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE VIRGINIA MEDICAL MONTHLY AND THE MEDICAL SOCIETY OF VIRGINIA, FOR THE YEAR ENDING DECEMBER 31, 1926.

RECEIPTS		DISBURSEMENTS	
Cash in bank, January 1, 1926 -----	\$ 7,559.67	Virginia Medical Monthly	
Virginia Medical Monthly		Preparation of Journal -----	\$7,200.93
Advertising -----	\$6,928.78	Salaries -----	2,000.00
Subscription (non-members) --	365.73	Postage -----	312.80
Subscription (\$2 a member) --	3,470.25	Rent and janitor -----	201.00
Interest -----	168.36	Sundries -----	324.81
Sundries -----	134.89		10,039.54
	11,068.01	Medical Society of Virginia	
Medical Society of Virginia		Salaries -----	\$2,000.00
Dues (less amount for Journal		Postage -----	253.17
and legal defense) -----	\$3,470.25	Legal defense -----	154.00
Legal defense (\$1 a member) --	1,736.00	Legislative Committee -----	600.00
Interest -----	168.37	Walter Reed Home and costs --	1,034.45
Sundries -----	249.63	Expenses—Councilors @ mid-	
	5,624.25	winter meeting -----	131.03
		Rent and janitor -----	201.00
		Secretary's expenses to meet-	
		ings -----	111.98
		Reporters for meeting -----	171.23
		Sundries -----	450.68
		Investment (6% 1st mortgage) --	5,000.00
			10,107.54
			\$20,147.08
	\$24,251.93	To balance -----	4,104.85
			\$24,251.93
Available for Legal Defense, January 1, 1926 -----	\$4,908.14		
Receipts during 1926 -----	1,736.00		
	\$6,644.14		
Investment (6% 1st mortgage bonds) -----		\$5,000.00	
Legal defense for two cases -----		154.00	
		\$5,154.00	\$1,490.14
Available for Legal Defense with \$5,000 invested -----	\$6,490.14		
Available for Operating Expenses -----	2,614.71		

AGNES V. EDWARDS,
Treasurer.

February 5, 1927.

This is to certify that we have examined the books and records of the Medical Society of Virginia, showing the cash receipts and disbursements of the Society from January 1, 1926 to December 31, 1926, inclusive, and find them to be correct as shown in this statement, and that the cash balance in the First and Merchants National Bank, Richmond, Virginia, both at the beginning and end of this period of time, have been verified by statements from that bank.

The books and records in the business office of the Society are properly and efficiently kept in order, and the system now in use will answer all requirements and give such information as may be desired.

I. C. HARRISON,
M. T. McCULLOCH,
Auditing Committee.

It was moved and seconded that these reports be received and filed.

The report of the mid-winter meeting of the Executive Council was next presented.

Executive Council Medical Society of Virginia

The Executive Council of the Medical Society of Virginia held its mid-winter session in the Society's offices in Richmond, February the 5th, 1927, at 2 P. M.

Present: Dr. L. T. Price, chairman, Drs. J. S.

Davis and E. C. S. Taliaferro, Israel Brown, W. D. Kendig, I. C. Harrison and M. T. McCulloch, Councilors; Dr. J. S. Horsley, president, and Miss Agnes Edwards, Secretary-Treasurer.

It was stated that invitations had been received from the Dinwiddie County Medical Society and the Princess Anne County Medical Society for the Society to hold its next meeting in Petersburg and Virginia Beach, respectively. Dr. J. Bolling Jones presented the invitation from Petersburg and Mr. F. M. Thomas, managing director of the new Cavalier Hotel, spoke in behalf of Virginia Beach. Owing to the fact that the Society met last fall in Norfolk, so near Virginia Beach, the council decided to accept the invitation of the Dinwiddie County Medical Society to hold the next meeting in Petersburg. The dates were set as October 18, 19 and 20.

The Auditing Committee, composed of Drs. I. C. Harrison and M. T. McCulloch, made its report which was ordered received and filed.

The president, Dr. J. S. Horsley, was asked to present any recommendations which may have occurred to him. He stated that he and Dr. Price, chairman, had endorsed the action of the State Bureau of Child Welfare, calling for a Survey of the Cause of Maternal Deaths in Virginia. The Council approved the action taken by Drs. Horsley and Price.

To prevent the tendency toward State medicine with the fear of its infringement upon the rights and privileges of the individual practitioner, Dr.

Horsley suggested that individual doctors in county groups co-operate with the State Board of Health in its endeavor to inoculate all children against diphtheria by the use of toxin-antitoxin, it being his opinion that this coming together of doctors would assist in the organization of county societies.

Dr. Horsley was instructed to secure from Drs. G. B. Barrow and A. T. Finch information as to the method they pursued recently in such a campaign in Mecklenburg County.

It was moved that it should be recommended to the full Council to abolish the Friday session of our State Society meetings, thus limiting our meetings to three days. Seconded and carried.

A motion that councilors attending this meeting of the Council be reimbursed for their expenses incident thereto was seconded and carried.

It was moved that the secretary-treasurer's expenses be paid to attend the Washington meeting of the American Medical Association. Seconded and carried.

Dr. Price stated that the Richmond Academy of Medicine had under consideration the construction of a building to be used as a library, which would also contain a meeting hall and office space. He wished to know if the Medical Society of Virginia would consider taking offices in such building. Dr. Price and Dr. Horsley were authorized to look into the advisability of having the State Society's offices located in the Miller Memorial Library Building, should the cost of same not exceed \$50.00 per month.

It was suggested that each district councilor should be asked to assist the secretary-treasurer as far as possible in the collection of delinquent dues.

Drs. Price and Taliaferro were appointed a committee to draft suitable resolutions on the death of Dr. Walter Cox, councilor from the Seventh Congressional District. It was announced that a meeting had been called in the Seventh District for February 23rd, to fill the vacancy caused by Dr. Cox's death.

There being no further business, the meeting adjourned.

Respectfully submitted,

LAWRENCE T. PRICE,
Clerk.

It was moved that this report be received and filed.

Dr. Southgate Leigh presented the report of the Delegates to the American Medical Association as follows:

Report of Delegates to The American Medical Association

Your delegates feel each year more deeply the responsibility of their position, which they take to be not only to represent the Medical Society of Virginia and its membership at the annual meeting of the American Medical Association, but also to represent the American Medical Association and its varied activities at the meetings of the State Society. The former is comparatively easy, while the latter is much more difficult.

It is well for us all to understand thoroughly that the American Medical Association belongs to the State Societies and through those societies to the County Societies and the individual doctors of the country. It is a most democratic body, its officers being elected by the representatives of the State Societies each and every year, and is completely under the direct control of the delegates from the State Societies. The House of Delegates exer-

cises its authority to the fullest extent and permits of no interference from any source.

This explanation is made in order to clear up a widespread misconception of conditions at the A. M. A. headquarters.

The Board of Trustees is the executive body of the A. M. A., its members being selected with great care from various sections of the country, their election being by the House of Delegates in open meeting and without any prearranged plan.

The members of the various councils are appointed by the President, with the approval of the House of Delegates.

The scientific and business affairs of the organization are conducted in the very best possible manner, with system, economy, and a profound interest in the welfare of the profession and the people.

The members of the profession in Virginia, as we have stated in former reports, should know more of the splendid work of the A. M. A., should visit its up-to-date headquarters in Chicago, and become more familiar with the constant and productive efforts being made for their benefit.

In a brief statement it is impossible to give you a complete account of proceedings of the last annual meeting. We can mention only a few of the most important matters.

It was especially gratifying to note the increased attendance from Virginia.

The very first act of the House of Delegates was to transmit the following message to the President of the United States:

Honorable Calvin Coolidge,

President of the United States:

The American Medical Association, representing 94,000 doctors of medicine, convened in annual session, extends cordial greetings to you. We affirm anew the fundamental principles and objects of our profession. We subscribe again our willingness to contribute our services for accredited humanitarian purposes. We pledge a continuance of persistent efforts to unfold the unknown laws of physiology and hygiene and to uncover the causative factors of disease.

We are ever ready to apply approved scientific principles and practices to enhance the health of our people that their vocational and social pursuits may be attended by a minimum of disease and physical incapacity.

In this spirit we convey to you, Mr. President, our greetings and felicitations.

THE AMERICAN MEDICAL ASSOCIATION

OLIN WEST, *Secretary*

The Speaker of the House urged that steps be taken towards standardizing surgical work, and said:

"Your Speaker is constrained to direct your attention to what is more and more becoming a serious problem and on which the public is becoming insistent for enlightenment. I refer to what are or shall be the qualifications and requirements for a man to be classified as a capable, competent surgeon. Under our plan of medical education, by reason of the tremendous increase in the number of all kinds of types of hospitals, because of perfected aseptic methods, and lastly because of the outstanding achievements that can be attained by surgical methods in the hands of competent, experienced surgeons, there is evidence of ill-advised, poor and unskilled surgical work being done by under-trained, incompetent men. . . .

"As an association, we have assumed and acquitted ourselves in the problem of standardizing our medi-

cal colleges. We have appraised and classified these colleges. We have surveyed and designated hospitals where satisfactory intern training is accorded. We have exposed and continued to expose therapeutic fraud and misrepresentation. We have given publicity to the quack and the charlatan and uncovered their methods. Within the year we have undertaken to pass approval on all electrical and physical apparatus in order that dependable, efficient apparatus may be identified. We have outlined certain requirements and standards of fracture treatment. These and similar reforms have received our attention and we are justly proud of the achievements recorded. Has not then the time arrived and are we not obligated, as America's highest authority, to whom the public rightly appeals for guidance and advice, to solve this one momentous question as to the requirements, qualifications and standards that are basic and essential ere one may hold forth as being a capable, dependable, properly trained surgeon and to formulate a means whereby the public may make such identification?"

President Phillips urged the necessity of developing the movement for periodical health examinations, with full records, and also insisted that Congress should have no right to exercise the "power of life and death over the sick" in limiting the amount of any remedy employed by the profession.

President-elect Jackson advised that the principles of medical ethics be taught in all medical colleges and that a more comprehensive and explanatory manual on ethics should be published by the Association.

Secretary West reported that a new high mark in membership enrolment has been established, with 93,882 on the lists, March 1, 1927. The net gain over enrolment at a corresponding date in 1926 was 2,090, with a corresponding gain in fellowship, the figures being now 60,958, a gain of 2,277 in the past year.

Quoting from Secretary West:

"There is abundant evidence indicating the growing strength and a constantly widening influence of many of the constituent state associations. Several have effected changes in their plans that have given their councils, committees and officers opportunity for more work and more effective work. The official personnel of these associations has, for the most part, cheerfully assumed added responsibilities and has creditably discharged the duties imposed, while the members have responded cordially to the appeals of their officers and have supported efforts for advancement. The result has been, stronger state associations, better satisfied members and a growing influence for good."

"It is desirable that the constituent associations shall be strong and progressive organizations. In developing their strength and in promoting their ends as state organizations, it must never be forgotten that the *county society is the basic unit and therefore the essential factor in the present scheme of organization*. As long as this scheme is adhered to it is important that the county society be made and kept as strong as possible. If all the strength is built into the superstructure, the edifice will fall."

The table showing the number of county societies in each State is enlightening: Alabama, Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey and Rhode Island have one local society for each county in the state, while the following make an excellent showing:

Illinois—102 counties with 91 societies.

Iowa—99 counties and 96 societies.

Kentucky—120 counties with 112 societies.

Massachusetts—16 counties with 15 societies.

North Carolina—100 counties with 88 societies.

Ohio—88 counties with 87 societies.

Virginia—100 counties with 52 societies. There are, however, 76 counties included in the membership of these 52 societies.

Your delegates have discussed the matter with various officers and committees of the A. M. A. and are convinced that Virginia should, as far as possible, have at least a skeleton organization for each county in the state, even in those cases where it is not feasible to meet more than once a year. Such an arrangement would be of enormous advantage in vital legislation work and in connection with various business matters which must come up from time to time in every county of the state. The hands of the State Board of Health would especially be greatly strengthened, and active co-operation between the profession and the Board would be developed.

The important matter of Disaster Relief should be handled in every section of the county by the county societies and not by outside organizations.

Eleven State Associations and one hundred and twenty county societies have already adopted the plan in conjunction with the Red Cross.

"Hygeia" made a gain of 10,000 subscribers during the year, and had at the last report 50,575.

The Woman's Auxiliaries of each state have helped largely in the increase. The profession in some sections has become actively interested. One physician alone spent \$500.00 for subscriptions.

The net financial loss of this splendid magazine, which is doing much in telling the truth about medicine to the public and in combating quackery, has been reduced, but still amounts to \$34,000.00 annually.

Every doctor in the state is urged to keep a copy of "Hygeia" on his waiting room table.

The Bureau of Legal Medicine was very active during the year in connection with Income Tax, Prohibition regulations as affecting doctors, narcotics and various other matters of importance to the profession.

Through this Bureau, the American Medical Association succeeded in getting the tax under the Harrison Narcotic Law reduced from \$3.00 to \$1.00 a year, and affecting a saving to the doctors of the country of more than \$200,000.00.

The Council on Physical Therapy is actively at work and reports its findings and suggestions from time to time in the Journal.

The Council on Medical Education and Hospitals reported in part as follows:

"Progress in medical schools consists chiefly in the enlargement of teaching plants, in securing better qualified teachers, and in the adoption of improved methods of instruction.

"The numbers of students enrolled have increased from 12,930 in 1919 to 18,840 in 1926 and to approximately 19,532 in the present session.

"The supply of physicians in the United States is 133 for each 100,000 people, as compared with 90 in Great Britain, 77 in Switzerland, 73 in Japan, 35 in France and 28 in Sweden. The number of graduates of medical schools in the United States each year is gradually increasing.

"Progress is being made in shortening the course of grammar and high school education, which is saving one or more years of time for many students. Another year of valuable time can be saved through a more general adoption of the quarter system and the use of summer months which are now being wasted in overlong vacation periods.

"The future practice of medicine promises to deal more largely with the prevention of disease—of keeping people well rather than merely curing them when sick. Through thorough examinations by reputable physicians, the public, it is believed, can be induced to undergo periodic health examinations whereby disease processes may be discovered and checked in their incipience.

"The most important factor in every hospital is the maintenance of a high moral and professional standard on the part of those who are admitted to the staff or who are permitted to care for patients in the hospital."

In connection with the Medical Course, there is a strong current of feeling, which showed itself especially at the last two meetings, that the Medical Course and premedical courses should be shortened, and the Medical Colleges should pay more attention to the fundamentals, and less to the specialties. The suggestion made by one of our delegates at the Dallas meeting that summer course work be credited on the time of the medical course, was adopted and recommended to the colleges of the country.

The nursing situation was reported on by a special committee with the following as some of their recommendations:

"That the business law relating to nurses' registries in all states be amended in a manner to conform to the new law in the state of New York.

"Endorsement and encouragement of visiting nursing service.

"Thorough trial by the members of the American Medical Association of hourly or part-time nursing with broad publicity of its methods and possibilities.

"Group nursing in hospitals.

"That the period of training be twenty-eight months, the first four months to be devoted to concentrated study of fundamental anatomy, bacteriology, physiology, chemistry and dietetics, and that the succeeding two years be devoted as far as possible to teaching the art of nursing by demonstration, participation and practice."

A special commissioner on Grading of Nursing Schools is making a comprehensive study of the situation in this country and abroad and as yet has not been in a position to make a full report.

Various resolutions and reports, concerning the use of alcohol in medicine, were referred to the committee on Reports of Board of Trustees and Secretary, of which one of your delegates was secretary. The committee held several meetings, which were attended by a large number of interested members and committees. The matter was gone into with the greatest possible care and thoroughness. When the report was presented, the House of Delegates resolved itself into a committee of the whole with closed doors. There was a very full and free discussion.

The report was as follows:

"The condition of hysteria into which the country was thrown by the struggle over the prohibition amendment has apparently subsided and the time has come when the American Medical Association should state plainly its attitude with regard to the use of alcohol and alcoholic liquors as therapeutic agents, as well as the position in which the physicians of the country are placed by the present unfortunate state of affairs. Such a statement should have no political bearing whatsoever and is intended to deal with the matter only from the practical and scientific medical standpoint.

"Alcohol is often very helpful in the treatment of disease and is being used in the practice of a very large number of doctors, many of whom believe it

to be an essential and life-saving remedy. These doctors are confronted by a most deplorable situation brought about by the framers of the Volstead Act, who, unintentionally, we believe, limited the amount of alcohol for one patient to a pint in ten days.

"In certain cases of serious illness a pint in ten days would be useless and law-abiding physicians have no other alternative than to violate the law in order to save life. This is wrong and should be corrected. We believe it will be promptly corrected if the situation is properly presented to the authorities in charge. We have reason to believe that the present head of the Prohibition Department would welcome a statement from this organization.

"Your committee would, therefore, recommend that with the co-operation of the special committee headed by Dr. Mayer, of Pennsylvania, and the excellent executive of the Bureau of Legal Medicine and Legislation, Dr. Woodward, the Board of Trustees be directed to prepare a bill to be presented to Congress correcting the unfortunate provision of the Volstead Act limiting the amount of alcohol used, and providing such regulations as will permit doctors to prescribe whatever amounts of alcoholic liquors may be needed for their respective patients, and subject to such reasonable restrictions as may be thought wise and best after a conference with the head of the Prohibition Department."

A further resolution was offered to be presented to Congress as follows:

"RESOLVED, That the American Medical Association declares its adherence to the principle that legislative bodies composed of laymen should not enact restrictive laws regulating the administration of any therapeutic agent by physicians legally qualified to practice medicine."

On the question of a Referendum, the Committee recommended that the matter be referred to the Board of Trustees for consideration and decision; and in the event that the Board decided in favor of a Referendum the Committee suggested the following questions:

(a) Do you believe that legislative bodies should enact laws regulating or limiting the prescribing of therapeutic agents by legally qualified physicians?

(b) Do you believe that alcohol and alcoholic liquors as listed in the latest edition of the United States Pharmacopeia are useful therapeutic agents in the treatment of disease?

The entire report was adopted by the Committee of the Whole and by the House of Delegates *without a dissenting vote*.

The splendid work of the Woman's Auxiliary and its various State and local branches was warmly commended by officers and committees in various reports.

The Association was addressed by the President of the United States and received by him and Mrs. Coolidge on the lawn of the White House.

Dr. W. S. Thayer was named President-Elect and Minneapolis selected for the next place of meeting.

Respectfully,

SOUTHGATE LEIGH,
E. C. S. TALIAFERRO,
J. W. PRESTON.

It was ordered that this be received and filed.

At this point the President stated that the House of Delegates at its first meeting may elect a Committee on Nominations and asked for the vote of the house on this question. It was moved, seconded and adopted that a Committee on Nominations be elected to present its report at the Thursday morn-

ing session. This Committee, composed of one member from each Congressional District, was: Drs. E. L. W. Ferry, N. G. Wilson, Stuart Michaux, W. C. Harman, J. T. Shelburne, J. O. Boyd, Noland M. Canter, P. B. Pulman, C. B. Bowyer, and M. T. Vaden.

Reports were now called from the standing committees:

MEMBERSHIP COMMITTEE: Dr. J. A. White, chairman, proposed the names of Drs. L. W. Newland, of Splashdam, Va., and Henry L. Townsend, of Marshall, Va., for active membership, and Dr. Knowlton T. Redfield, of Roanoke, Va., for associate membership. It was moved and seconded that these members be received. He further recommended that Dr. W. L. Harris, ex-president of the Medical Society of Virginia, and Dr. J. Shelton Horsley, this year's president, be elected to honorary membership. This was unanimously adopted. Dr. White stressed the need of having all counties in the State organized and suggested that special effort be made along this line in the coming year.

The president at this time requested the first vice-president, Dr. J. Warren White, of Norfolk, to take the chair for the remainder of this session.

JUDICIARY COMMITTEE: Dr. Wm. F. Drewry, chairman, stated that he had no report to make but was calling a meeting of his committee for 8:30 Wednesday morning, October 19th, and would report later if there were any developments.

LEGISLATIVE COMMITTEE: Dr. H. U. Stephenson, chairman, stated that he had nothing especial to recommend. Various suggestions are constantly being made with regard to taxes, chiropractors, etc. He urged that we have a good medical practice act and should not weaken but stand up for the people and the legislators will stand behind us. This report was ordered received and filed.

PUBLICATION COMMITTEE: Dr. A. G. Brown, chairman, presented the following report:

Report of Publication Committee

The Publication and Program Committee begs leave to report a year of routine work. Committee meetings have been held during the year to consider, (1) selection of the subjects for symposium for discussion at this meeting of the society, (2) later to arrange the program for the session. The committee finds it difficult to arrange the program to meet the convenience of all, but it endeavors to arrange the subjects in the best manner possible under the provision of the conditions and by-laws. This year, the president of the society, Dr. Horsley, sat with the committee and participated in the arrangement of the program.

The committee met also to consider questions of publication of the journal. The publication of the VIRGINIA MEDICAL MONTHLY remains always a big enterprise of the Society because the production of the monthly journal entails a large amount of detail work. The standard of this publication as a state journal should not be appraised here. But we may say that the mechanical work involved in getting out the journal each month, the detail of handling the proof and correspondence with contributors, and a thousand details entering into the final product, move with routine regularity, under the administration of Miss Edwards.

The committee has had occasion to consider details of the appearance of the journal, the paper, the cover, etc., but it has thought best to make no alterations in its present style. Comparisons, made casually, give the impression that the VIRGINIA MEDICAL MONTHLY compares favorably in its general

dress and appearance to the journals of other states. The use of a heavy paper cover may improve its appearance. This would involve additional expense per issue. This question is still open.

Respectfully submitted,

ALEX. G. BROWN, JR., *Chairman.*

It was moved and carried that this report be received and filed.

Under special committees, the following were called:

HOSPITAL COMMITTEE: The chairman, Dr. J. S. DeJarnette, was absent and no report was presented.

NECROLOGICAL COMMITTEE: Dr. Charles M. Edwards, chairman, was absent, but it was stated that he had sent his report which gave names of 28 members who had died during the past year. As this was to be presented at Memorial Hour that evening, it was moved that this report need not be read now. (*For names, see report of General Sessions, page 501*).

LIBRARY COMMITTEE: Dr. I. C. Harrison, chairman, presented the following report for which he stated that Dr. Stuart McGuire, a member of his committee, had furnished much of the information given.

Report of Library Committee

The Committee on Library of the Medical Society of Virginia is fully conscious of its responsibility, but it has deemed it inexpedient to take any action during the past year.

Your Committee has been informed by reliable authority that developments in Richmond in the near future will probably meet our needs for a Library without cost to the Society.

The Richmond Academy of Medicine and the Medical College of Virginia have purchased adjoining property in Richmond and are now having plans prepared for building which will probably be erected during the coming year.

The Richmond Academy of Medicine will build a Home for the Academy, which will house the Miller Museum Library and also contain offices, lounge rooms and an auditorium. The Medical College of Virginia will build a working library with stacks, reading rooms and every modern facility. These two buildings will communicate one with the other.

Your Committee believes that after these two buildings are completed it is reasonably certain that arrangements can be made by which the Medical Society of Virginia can secure office space for its headquarters in the building of the Academy of Medicine and certain privileges in both the Museum Library of the Academy and the working Library of the College which will meet the needs of the Society.

Your Committee therefore recommends that the new Committee on Library, which will be appointed by the President for the coming year, shall be instructed to ascertain whether an arrangement, such as the above suggested, can be made and to report the results of its investigation at the next meeting of the Society.

Respectfully submitted,

I. C. HARRISON, *Chairman.*

It was moved and seconded that this report be received and filed.

COMMITTEE ON COOPERATIONS WITH THE STATE DEPARTMENT OF HEALTH IN CHILD HYGIENE WORK: Dr. Lawrence T. Royster, chairman, was absent—no report.

COMMITTEE ON COOPERATION WITH STATE NURSES' ASSOCIATION: Dr. J. Allison Hodges, chairman, presented the following report:

Report of Committee on Cooperation With State Nurses' Association

Your Committee, composed of Dr. A. M. Willis, Dr. J. T. Buxton, Dr. C. J. Andrews, Dr. J. C. Flippen and Dr. J. Allison Hodges, respectfully makes the following report:

No special meetings of the Committee have been held with the Nurses' Association, during the year, but there have been frequent conferences with members of the Committee.

It may be stated that the relations of the profession regarding the nursing service have not been entirely satisfactory either to the physicians or the nurses of the State. Many factors that have long been in existence and others that have arisen have contributed to this end.

Briefly stated, the result has been unsatisfactory to the hospitals and to the physicians generally, for while there has been no lack of nursing assistance, yet the situation has been increasingly difficult as regards satisfactory results in giving the best service to patients generally. This state of affairs has arisen from a number of material facts that have developed during the year, notably an increasing demand by the Nursing Association for higher standards and more technical training, with the attendant results that the hospitals have had to provide a larger nursing corps and there subsequently has been a division of labor which has compelled many hospitals to adjust their courses so as to provide for these new duties of affiliated group teaching in other schools and hospitals, and the patients in the hospitals have been the consequent losers in service and have suffered in a monetary way because of the necessity of having to use special nurses almost entirely. It is thus evident that the hospital staffs are being put to unusual expense, and yet the patients are not receiving the customary hospital care due them.

These conditions are rendered obvious and more trying at night both for the patient and the night nurse on duty, the one receiving necessarily but little attention and the other naturally being unable, physically, to do her full duty to the number of patients allotted her. This is a most important as well as serious question and demands further and urgent consideration by the hospital staffs and nursing associations, both in justice to the patient and the referring physician and hospital authorities. In fact, one nurse at night for a large number of patients, varying from fourteen to twenty, cannot do her duty, nor be expected to give satisfactory service to suffering patients, and this reflects adversely not only upon the nursing service, but upon the hospitals themselves.

This Committee is not considering the advisability nor feasibility of the present prescribed course of nursing at this time, but is simply stating the evident results of the present methods employed and the consequent injustice and danger of such management.

The simple statement of such facts as these should be sufficient to stimulate hospital authorities especially, to take up this whole question of nursing service, for it is within their province ultimately, that the solution of such questions as these, must be made, for the present regime is as hard financially upon the hospitals as it is difficult physically, for the nurses to cope with.

Beginning with the coming New Year, The Standardization Board for hospitals has also added another complicating feature to this situation by ordering that autopsies shall be made in 10 per cent of all cases dying in each hospital desiring a standard rating, a procedure practically impossible of

realization in many hospitals in this section, especially.

The one rather urgent question that has been brought before the Committee during the year, has been the desire on the part of some nurses to increase their *per diem* charge for nursing to \$6.00 for day service, and \$7.00 for night duty, but under existing circumstances the Committee, while not desiring to obstruct unwarrantedly this movement, if feasible, yet thought it was best not to consider this proposed advance definitely at this time, but to allow time for its adjustment in consideration of some of the facts stated above, which are already taxing the patients' financial ability to the limit.

In previous years, your Committee has met a Committee from the Nurses' Association and your Chairman has appeared before the State Nurses' Association, endeavoring to curtail the course of nursing education, or if this could not be effected, to provide for a restricted course under hospital supervision for Assistant trained nurses, but the Nurses' Association did not approve of this procedure, and subsequently initiated a practical nursing method of licensure which is now in legal effect, but not generally accepted or utilized by applicants themselves, or practicing physicians. There is a great opportunity for the profession, and especially the hospitals, to give assistance along this line, by proposing and perfecting a rational method of instituting practical training with six months' courses under proper supervision.

It appears to the Committee that the present trend is towards a too technical nursing training and the results will be productive, it fears, of further complications and hardships to both patients and physicians generally, for the output may be poor physicians, and not practical nurses.

Greater co-operation between the physicians themselves, especially through the hospitals, with the nurses in their endeavors, must be effected, and probably one of the first innovations in this State should be the selection of one or more physicians as associate members of the State Nurses' Association Board of Examiners or of its executive Committee or both, which is in effect, to some degree, in nearly every other State except Virginia.

The nurses have been active and zealous in their endeavors to organize and regulate their profession, but since their work is so closely allied to that of Medicine and is but one unit of the whole, it seems eminently judicious and practically necessary that the two bodies should co-operate in all their plans and methods for protecting their professions and serving the public.

No more important problem confronts our profession today, it is believed by the Committee, than this matter of providing for a satisfactory adjustment of the whole nursing situation in justice to all people, as well as the nurses and physicians themselves, and the medical profession is earnestly urged to do its part in the solution of this problem.

Consequently, it is recommended that this matter be referred to the recently organized Virginia Hospital Association for study and suggestions which shall be reported to the Committee on Medical Education and Hospitals for action.

Respectfully submitted,

J. ALLISON HODGES, *Chairman*.

It was moved and seconded that this report be received and filed.

COMMITTEE ON PUBLIC HEALTH AND EDUCATION: Dr. R. K. Flannagan, chairman, presented the following report and it was ordered that this be received and filed:

Report of Committee on Public Health and Education

The committee on Public Health and Education of the Medical Society of Virginia herewith presents the following report:

The individual members of your committee live at points so remote from each other that it has not been practicable for them to meet in conference during the year. However, the chairman has from time to time communicated with the members and as far as possible secured a unanimity of thought in regard to the subject matter of this report. With their approbation he has written to the secretaries of the Virginia component medical societies, enclosing the resolutions suggested by our committee and adopted by the Virginia Medical Society at the past two annual meetings. These resolutions as you know have to do with the attitude of the local societies towards public health work, towards quack propaganda and towards physical examination of apparently healthy people—the so-called Life Extension plan.

It has seemed to the committee that its best function this year would be to stimulate as far as possible the medical profession through the local societies to put these resolutions into effect.

The first letter written last April brought forth small results, so far as we know, but a second recently sent out brought encouraging response, the following societies having taken positive action in regard to the resolutions: The Nansemond County Medical Society, The Pittsylvania-Danville Medical Society, The Norfolk County Medical Society, The Accomac Medical Society, the Alexandria Medical Society, and the Mecklenburg Medical Society.

Letters have been received from officers of other societies, expressing approval of the resolutions and saying that they are now being considered by committees. While this response is not large, it indicates to your committee that some at least of the more actively functioning societies are prepared to help forward the great progressive movements which have originated in the medical profession, namely, (1) the prevention of disease through public health organization, (2) the education of the public as to medical facts through well considered propaganda and, (3) the lengthening of life by organized group clinics.

The committee believes that for the immediate future it should continue to stimulate action by the societies and to aid them as far as lies in its power to carry into effect the resolutions previously adopted. It will during the coming year also endeavor to secure from the local societies reports of progress in carrying into effect the work undertaken.

In the judgment of your committee no nobler or greater task lies before the medical profession than that comprehended in the reduction of communicable disease. That this may be done each group of medical men should have its full part in extending the public health service in its locality.

No greater abuse exists today than the self-seeking propaganda of the mercenary and plausible cultist who through every avenue of publicity impresses the ignorant and half-trained mind with his misleading jargon to the jeopardy of human life and to the discredit of scientific medicine. An aggressive counter move by the profession is, we believe imperative.

No greater loss is sustained by the State than that caused by the premature deaths of trained and useful men in the prime of life. The early diagnosis of the inroads of disease is of the utmost importance if this great drain upon the greatest of natural resources is to be checked.

Your resolutions cover these three points. We

urge their hearty acceptance by all medical societies and their ardent, active interest in putting them into effect. To this end we would be pleased if the Medical Society of Virginia would reiterate its endorsement of the resolutions offered by your committee and adopted at the 1925 and 1926 sessions and would urge upon the affiliated societies the fullest co-operation with the Public Health and Education Committee during the coming year.

Respectfully submitted,

ROY K. FLANNAGAN, *Chairman*,
C. B. BOWYER,
GEO. B. YOUNG,
J. H. HIDEIN,
JAS. MORRISON.

WALTER REED COMMISSION: The chairman, Dr. E. C. S. Taliaferro, being absent, report of this Committee was presented by Dr. Clarence Porter Jones, who also showed pictures of "Belroi" before and after undergoing renovation. After reading this, he stated that the remodeling of Belroi had cost much more than anticipated and for this reason it was necessary to collect additional funds for fencing and for remodeling the kitchen.

Report of the Walter Reed Memorial Commission

A NEW NATIONAL SHRINE

On Saturday, October 15, 1927, Belroi, the birthplace of Walter Reed, was opened and dedicated as a National Shrine, in the presence of his widow, Mrs. Emelie Lawrence Reed; his son, Col. Walter L. Reed, U. S. A., and his daughter, Miss Blossom Reed, sixty-six other relatives and a throng of over three thousand people. Many made the pilgrimage from far off lands. The United States Army sent



Belroi—birthplace of Dr. Walter Reed, Gloucester Co., Va.

for the occasion a large fleet of Battle Planes, and the famous Thirty-fourth Infantry band.

What's back of all this?—the writer has been asked. First, to do honor to a great military hero,—the first one who achieved fame for saving life! Second, to encourage research. Research is necessary for the world's progress. There is no better way to encourage research than to tell the story of Walter Reed. The Commission is determined that it shall be told in every school room in America. It will kindle the young hearts with fiery zeal to do something for humanity which will bring forth a thousandfold.

Walter Reed became great for doing the simpler things and became famous for doing spectacular things: his promulgation of simple health truths on

the one hand, and the control of typhoid and his eradication of yellow fever on the other hand. The Great Physician said, "I am among you as he that serveth." Since the world began, men have become famous for their military achievements, for their oratory, for their wit, for their literary attainments, for their political triumphs, for their inventive genius, and for various other accomplishments, but the men and the women who are most affectionately remembered are those who rendered service for the sake of serving; who have consecrated their talents, their endeavors, sometimes their lives to some cause, or some discovery for the good of mankind, in the spirit of unselfishness and with no thought of gaining fame or pecuniary emolument.

Such a man was Walter Reed. No man in all the world has rendered a more valuable service, and no man has rendered service in a more noble spirit and sacrifice. He was born in the humble house in Gloucester County, Virginia, which was dedicated as a shrine to commemorate the life and the service of the man. And in all the world that little house and the man who was born therein are held in sacred reverence. There are others who share honors with Dr. Reed,—the twenty-five "immortals," who offered their bodies for experimental research in the yellow fever study, including Carroll, Lazear, Cooke, Kissenger, Moran and Miss Maass, soldiers, a civilian, Spaniards and an Englishman: also Agramonte, Gorgas, Guiteras and Keen, who rendered



Belroi restored 1927—birthplace of Dr. Walter Reed, Gloucester Co., Va.

material assistance. Dr. Lazear and Miss Maass died, as well as two Spaniards.

America has no roll of honor more noble and every name should live in history with the name of Walter Reed.

Walter Reed's father was a minister of the Gospel, a disciple of Him who said, "I am among you as he that serveth." One of that minister's sons entered the medical profession, the other the ministry. But both learned from their father that the greatest man in the Kingdom of God is he who renders the greatest unselfish service; and the ceremonies in connection with the dedication of Belroi were more impressive and peculiarly impressive because the surviving son and brother, Rev. James C. Reed, D. D., was present to pronounce the benediction.

The birthplace of Walter Reed has been preserved as a Shrine! Westmoreland has its Wakefield, Alabarque its Monticello, and Gloucester its Belroi.

CLARENCE PORTER JONES,
Secretary.

It was ordered that this report be received and filed.

COMMITTEE ON MEMORIAL TO DR. J. P. METTAUER: Dr. Alex. G. Brown, Jr., chairman, presented the following report, stating that the committee had finished its work. He also showed a picture of the monument which had been placed over Dr. Mettauer's grave and stated that this would be reproduced in the VIRGINIA MEDICAL MONTHLY. (See page 514).

Report of Committee on Memorial to John Peter Mettauer

At the meeting of the Society at Norfolk, last year, the House of Delegates appointed a committee for the purpose of marking, with an appropriate memorial, the unmarked grave of that distinguished Virginian, pioneer surgeon and physician, Doctor John Peter Mettauer. Drs. J. Allison Hodges, Paulus A. Irving and Alex. G. Brown, Jr., were appointed to carry out this mission and three hundred dollars was appropriated to defray the costs.

A careful consideration was given the general subject of design. It was thought best, every phase of the matter considered, that a memorial head-stone over the grave of this eminent practitioner was the best design to employ and, that there be marked upon it the name, academic and professional titles, birth and death dates, and stated "Erected by the Medical Society of Virginia." This idea was carried out by awarding the contract for Georgia granite, dressed, tomb-stone, 4 feet tall with base 3 feet, 6 inches wide and 1 foot, 6 inches thick. Dr. Irving, living in Farmville, kindly supervised the work and has approved the finished stone. The committee herewith submits a photograph of the tribute paid the memory of a remarkable fellow practitioner, by the fellows of the Medical Society of Virginia.

Respectfully submitted,

ALEX. G. BROWN, JR., *Chairman*,
PAULUS A. IRVING,
J. ALLISON HODGES,

Committee.

It was moved and seconded that this report be received and filed.

Upon motion, the House now adjourned to meet at 9 o'clock, Wednesday morning, October the 19th.

WEDNESDAY, OCTOBER 19, 1927.

The meeting of the House of Delegates at 9 o'clock, October 19, was called to order by the President, Dr. J. Shelton Horsley, of Richmond.

The business of receiving reports from special committees was resumed.

COMMITTEE ON SCIENTIFIC WORK: The chairman, Dr. Charles Phillips, being absent, no report was presented, but it was stated that the exhibits on display in the High School Building would speak for the work of this Committee.

COMMITTEE ON MEDICAL EDUCATION: The chairman, Dr. Stuart McGuire, was absent but sent a report, which was read by the secretary and it was ordered that it be received and filed.

Report of the Committee on Medical Education of the Medical Society of Virginia.

Owing to the fact that your Committee is composed of busy men, living at widely separated parts of the State, no meeting has been held during the year, and the only action taken has been through correspondence. This condition is regrettable, but in the opinion of your chairman, is inevitable unless the future Presidents of the Society follow a different plan in naming the members of the Committees they are authorized to appoint.



Photo of headstone over grave of Dr. Mettauer, erected by Medical Society of Virginia.

The present plan is to give representation to various parts of the State on each committee, thus making it very difficult to secure a meeting. Instead of distributing the members of each committee over the State, it would be better to distribute the committees themselves among the geographical divisions of the State. If one committee was composed of members living in Tidewater and others from those living in Piedmont, the Valley and the Southwest, then all parts of the State would be represented and full meetings of the committee could be secured without undue sacrifice of time and money.

To show what committees on Medical Education of other States are now doing, the following is quoted from information furnished by the Council on Medical Education of the American Medical Association:

New York reports considerable progress with post-graduate medical education all over the State. It gives short courses and lectures on many subjects in nearly every county. Public health questions, such as diphtheria are stressed. Courses are also given in Obstetrics, pediatrics and Cardio-Renal Diseases.

Massachusetts carries on this work through the State Society by means of addresses, circulars, cor-

respondence and other legitimate means. Opportunity is sought and used on every occasion to encourage entrance into general practice and discourage short cuts to specialties.

Rhode Island has been doing Radio broadcasting and giving short addresses on health topics.

Florida has done some very constructive work in making a survey of hospitals relative to medical education facilities.

Texas has centered on her medical schools, these offering short summer courses to the general practitioners of the State.

Colorado is giving semi-annual clinical courses at the State University Medical School in Denver.

Minnesota is putting on a post-graduate extension course in medicine, is organizing a speaker's bureau and a central health council and is putting on a series of "health days."

Wisconsin is looking to her hospitals, especially in Madison and Milwaukee, in an effort to provide more adequate hospital facilities for medical instruction.

Michigan is concerned with the standardization of a course for laboratory technicians

Kentucky's efforts are bent on the solution of the problem of the country practitioner.

Ohio is giving one week annually to extensive programs of instruction in her District Societies, and reports that these meetings are very successful.

STUART MCGUIRE, *Chairman*.

COMMITTEE TO INVESTIGATE TRAINING OF MIDWIVES IN VIRGINIA: The following report, signed by all the members of the committee, was read by the Secretary, in the absence of the chairman, Dr. Greer Baughman:

Report of Committee to Investigate Training of Midwives in Virginia

The Committee for the Study of the Midwife Situation in Virginia, appointed by the President, Dr. J. Shelton Horsley, wishes herewith to make the following report:

Of the 2,449,950 people that live in the State of Virginia, 771,950 reside in cities or towns of one thousand or over, leaving 1,678,000 to live in small towns and in the country. More than two people live in the country of the State of Virginia to one in the large towns and cities.

The area covered by the cities and towns of over one thousand is approximately 464 square miles, leaving approximately 41,000 square miles for the rest of the State. Sixteen hundred and twenty-four doctors live in cities and towns of over 1,000, while 807 supply the rest of the State. In the cities and towns there is one doctor to 469 people, while in the country there is one doctor to 2,079. In spite of the handicap of few doctors and great distances to travel, the doctors of the State during 1926, delivered 68.2% of the women, while the midwives accounted for 31.8%.

In view of the above statistics and other conditions, it seems to us impractical that the doctors will be able to deliver all of the women in the State at present, so we recommend as follows:

1. We regard midwives as necessary at the present time.

2. We endorse the action of the State Board of Health in decreasing the number of midwives in the State from nine thousand to fewer than five thousand. Only 1233 of these were sufficiently active in 1926 to deliver over five cases during the year.

3. We recommend that the individual members of the Medical Society of Virginia offer their personal assistance in attempting to improve the education of midwives.

4. We endorse the action of the State Board of Health in offering instruction to pregnant women, and suggest that this instruction be pushed even more vigorously.

5. We suggest the establishment in various sections of the State, preferably in general or private hospitals, of dispensaries for the instruction and examination of indigent pregnant women.

6. We recommend that there be in every county of the State a health nurse, part of whose duties will be to provide competent and comprehensive prenatal instruction, and urge that the doctors in each county cooperate in securing this provision.

7. The ideal for which we are striving is that all the deliveries in the State should be under the supervision of the medical profession of the State.

8. The medical schools should be responsible for better instruction of students in obstetrics, and for post-graduate instruction.

9. The State Board of Health should be responsible for distribution of literature; and, in conjunction with the local medical profession, be responsible for midwives as long as they are needed; and be re-

sponsible for instruction of the public as to the need of prenatal care.

L. A. CALKINS, University,
H. G. MIDDLEKAUFF, Weyers Cave,
H. D. HOWE, Hampton,
W. R. MARTIN, Charlotte C. H.,
J. BOLLING JONES, Petersburg,
MARY EVELYN BRYDON, Richmond,
GREER BAUGHMAN, Richmond,

*Committee for the Study of the
Midwife Situation in Virginia.*

Dr. J. Bolling Jones, a member of the committee, having just come in, was asked to discuss the report. He emphasized the importance of the statements brought out in the report, and stated that these midwives easily caught on to the management of cases with the personal assistance given them by the medical profession. He urged the instruction in prenatal care.

Dr. E. G. Williams stated his appreciation for the fine report. He said that the plan of the State Board of Health is to co-operate with the physicians and that the number of midwives in the state had been reduced from 9,000 to 2,500 by trying to enforce the registration of midwives in the state.

Dr. M. T. McCulloch told of the condition in his county and how they had tried to train the midwives and how they had selected four out of eleven midwives in their county and trained them and urged them to be registered. The others seemed unable to be trained.

Dr. Percy Harris stated that the profession needs to co-operate with the State Board of Health and it is up to the individual doctor to help in the clinics and put himself into the forefront of the profession.

It was moved and seconded that this report be adopted.

Dr. J. Warren White, Norfolk, first vice-president, here took the chair upon request of the president, who had to leave to take charge of the general meeting.

COMMITTEE TO INVESTIGATE THE LABORATORY TECHNICIAN SITUATION IN VIRGINIA: Dr. Charles Phillips, chairman, being absent, the following report was given by the Secretary:

Report of Committee to Investigate the Laboratory Technician Situation in Virginia

The special committee, appointed to study the laboratory situation in the state, has carefully gone into the matter and begs to report as follows:

1st. *Present Laboratory Situation in Need of Improvement.*

When diagnostic and clinical laboratories were first begun this work was almost exclusively in the hands of physicians who had specialized in laboratory work. Such technicians as they had were those whom they, themselves, had trained and trained very carefully. The quality of work done in these laboratories was usually of a very high grade, but the quantity of service rendered was very limited. Such laboratories were located only in the larger medical centers and the general practitioner had no laboratory facilities that he could call upon. There are still a few laboratories of this type to be found in the larger centers, but the increased demand for laboratory work and the increased knowledge of laboratory tests on the part of the physicians has led to a great multiplication of laboratories during recent years.

It is now generally recognized that it is difficult to carry on scientific diagnostic work without the

aid of a laboratory. As a result of this, numerous laboratories have sprung up throughout the state. Practically every hospital has a laboratory of some type, many groups of physicians have a laboratory for their own work, and even a few individual physicians maintain a laboratory. Most of the cities of the state have a public health laboratory in addition. It is difficult to state how many laboratories there actually are in the State of Virginia, but the number is quite large.

As a result of this demand a new profession has sprung up, that of the laboratory technician. Unfortunately, however, this work is not yet on a sound professional basis. In fact, it seems that almost anyone who wishes may call himself a laboratory technician and can succeed in finding employment somewhere. In many instances the hospital superintendent employs the laboratory technician without consulting any member of the medical staff. In our opinion the hospital superintendent is not qualified to select a laboratory technician and judge of his qualifications. In many cases the technicians selected are grossly incompetent and the quality of work done is such as to be dangerously misleading. Poor laboratory work is in the opinion of your committee worse than none, as its results cannot be depended upon. The committee has definite knowledge of facts to prove these statements.

The demand for laboratory technicians has led to the establishment of numerous quack schools—schools that take girls out of high schools and turn them out as full-fledged laboratory technicians in the space of a few months. It is humanly impossible for girls trained in such a manner to be competent.

2nd. *Establishment of Standing (amended to "Special") Laboratory Committee.*

In order to relieve the situation outlined above, it is recommended that the Medical Society of Virginia establish a standing (amended "special") Laboratory Committee, the duties of this committee to be:

1st. To promote adequate training for laboratory technicians.

2nd. To act in an advisory capacity for persons desiring the services of a laboratory technician.

3rd. *Training of Laboratory Technicians.*

As suggested above, the present facilities for the training of laboratory technicians are inadequate. It is recommended that the Medical College of Virginia and the Medical Department of the University of Virginia be urged to further the training of laboratory technicians to the limit of their ability. It is further recommended that those hospitals maintaining well equipped laboratory departments in charge of a full time medical pathologist be likewise urged to undertake the training of as many pupil technicians as they are equipped to handle.

4th. *Minimum Requirements for Technicians.*

The committee has studied this phase of the subject but does not yet feel prepared to make definite recommendations. It would be advisable for the standing (amended "special") committee, if appointed, to continue this study.

5th. *Appropriation for Expenses.*

It is suggested that an appropriation be made to meet the incidental expenses of the standing (amended to "special") committee previously recommended not to exceed \$100.

Respectfully submitted,

CHARLES PHILLIPS,
Chairman.

Dr. K. D. Graves was of the opinion that it would be best to withhold the appropriation of \$100.00 until the matter could be further investigated.

Dr. P. St. L. Moncure stressed the importance of this work. We have two excellent colleges and these people have got to be educated somewhere. We can handle them as well as anybody else. We ought to have some recognized place, course, and standard where they can be taught in our own colleges. He recommended that the report be adopted.

Dr. F. H. Smith stated that if this work were given to a standing committee it would necessitate the changing of the by-laws and asked if a special committee might be substituted for the word standing in the report as read.

This receiving a second, the report was adopted as amended.

COMMITTEE ON REVISION OF MEDICAL PRACTICE ACT OF VIRGINIA: Dr. J. W. Preston, chairman, presented his report as follows:

Report of Committee on Revision of Medical Practice Act of Virginia

To the Members of the House of Delegates of the Medical Society of Virginia:

Your Committee to which you have delegated a tentative revision of the Medical Practice Act of the State wishes to report that, preliminary to its work, it requested suggestions and advice from the Legal Department of the American Medical Association; obtained copies of the Practice Acts of the states which seem to have the better working statutes; forwarded questionnaires to the Secretaries of the various Examining Boards requesting suggestions, and in addition utilized notes which had from time to time been made by members of the Examining Board of our State.

After a careful survey as above, the conclusion of your committee is that while the Virginia law as a whole represents a gradual evolution, through amendments, from an early beginning and as a result is not altogether well worded or connected and perhaps in certain sections not altogether as clear as might be desired, it is comprehensive, pointed, and upon the whole compares most favorably with the best statutes in the country.

Recognizing therefore the dangers incident to an attempt to reword and recast the entire Act, with a doubtful gain, the complete changes which the judgment of your committee would suggest are few, and the amendments proposed and here presented are only such as experience has shown to be needful, and such as modern usages would seem to require.

Our recommendations, section by section, are as follows:

AMENDMENTS AND CHANGES RECOMMENDED BY COMMITTEE.

Section 1608. *Board of Medical Examiners, How Constituted, Term of Office.*—(No change.)

Section 1609. *How and When Appointed.*—In the 10th line after "and" insert "the appointment."

Section 1610. *Oaths, Powers, Meetings, Rules and Regulations.*—(No change.)

Section 1611. *Preservation of Records.*—(No change.)

Section 1612. *Registration of Certificate; Duties of Clerks.*—Twenty-third line, after "such certificate" insert paragraph:

"In such counties and cities as may require a yearly license issued by the Commissioner or other officer, it shall be the duty of said Commissioner or other officer, to require the licensee to furnish a certified statement that he or she has registered his or her certificate in accordance with Section 1612,

and in the absence of such statement it shall be unlawful for said Commissioner or officer to issue a license."

Twenty-eighth line: Erase "President" and insert "Secretary."

Thirty-first line: After "any clerk" add "or Commissioner or other officer."

Section 1613. *Verification License; Reciprocity; Duplicate Certificates.*—Twenty-second line: After "by this chapter," insert "and may at its discretion issue such certificate to applicants upon endorsements of Boards of states with which reciprocal relations have not been established, provided credentials of applicant are satisfactory, and provided further that his or her school of graduation and his or her grades be deemed fully equal to those required by the Virginia Board."

The Board of Medical Examiners may accept in lieu of its own examination the certificate of the National Board of Medical Examiners, the fee for which shall be the same as that required for reciprocity.

Section 1614: *Violations, Trials, Powers of Board Refusing Examination.*—Twenty-seventh line, insert: The State Medical Examining Board may refuse to admit to examination or reciprocity, or to grant a certificate provided for in this chapter, to a person guilty of unprofessional, dishonest, or immoral conduct, and may revoke or suspend a certificate for like cause or causes.

The words "Unprofessional Conduct" as used in this act are hereby defined to mean any of the following acts, to-wit:

(a) No change.

(b) No change.

(c) No change.

(d) Insert the following: Prescribing or dispensing morphine, cocaine, or other narcotics or alcoholics with intent or knowledge that same shall be used otherwise than medicinally or with intent to evade any law relative to the sale, use or disposition of such drug.

(e) All advertising of medical business in which grossly improbable or extravagant statements are made, or which have a tendency to deceive or defraud the public, or impose upon credulous or ignorant persons, or in which mention is made in such advertisements of venereal diseases, diseases or disorders of the genito-urinary organs or chronic ailments.

(f) Violation of Section 1639 of the Medical Practice Act.

(g) Advertising or professing to treat human ailments under a system or school of treatment or practice other than that for which he or she holds a certificate, or advertising that he or she can cure, or treat diseases by a secret method procedure, treatment or medicine.

Section 1615: *Admission to Examination; Power of Board.* Eighth line: After (a) age or more, add "and who has not at any time been guilty of unprofessional conduct as defined in Section 1614."

(d) Sixth line: Following American Medical Association, omit "and."

Seventh line: Following American Institute of Homeopathy, add "and of the American Osteopathic Association," respectively.

(e) Eighteenth line: After "American Medical Colleges," erase "or" and insert comma, and following the Institute of Homeopathy, add "or the American Osteopathic Association," respectively.

Section 1616: *Disposition of Funds; Compensation of Members of the Board; How Paid.*—(No change.)

Section 1617: *Conduct of Examinations.*—(No change.)

Section 1618: *Exemptions from Examination; Exceptions.*—Tenth line: After "credentials," add comma, "the fee for which shall be the same as for reciprocity."

Section 1619: *Definition of Chiropody.*—(No change.)

Section 1620: *How Certificate to Practice Chiropody Issued.*—(No change.)

Section 1621: *Examination of Applicants to Practice Chiropody.*—(No change.)

Section 1622: *Definition of Practice of Medicine.* Sixth line: Following "or gives surgical assistance," insert "Diagnoses or treats."

Section 1623: *Penalties.*—Seventh line: Following "for a term of not exceeding six months" add, "and for a second offense the punishment shall be a fine of not less than \$50.00 or more than \$500.00 and imprisonment of not less than thirty days nor more than one hundred and eighty days."

Section 1638: *Who excluded from Nine Preceding Sections.*—(No change.)

Section 1639: *Division of Fees Between Physicians and Surgeons Prohibited; Penalty.*—(No change.)

A. L. GRAY, M. D.,

T. S. HENING, M. D.,

LAWRENCE T. PRICE, M. D.,

PHILIP ST. L. MONCURE, M. D.,

J. BOLLING JONES, M. D.,

J. SHELTON HORSLEY, M. D.,

H. U. STEPHENSON, M. D.,

J. ALLISON HODGES, M. D.,

J. W. PRESTON, M. D., *Chairman.*

(The other two members of this committee—Drs. Israel Brown and Geo. J. Williams—were unable to attend the meeting).

The revisions as suggested by Dr. Preston and his committee received a free discussion by Dr. G. J. Tompkins, Dr. Isaac Peirce, Dr. J. A. Hodges, Dr. P. St. L. Moncure, Dr. F. H. Smith, Dr. M. L. Harris, Chairman of the Judicial Council of the American Medical Association (upon request of the House of Delegates), and Dr. I. C. Harrison, after which it was moved and seconded that the recommendations be adopted.

Upon adoption of Dr. Preston's report, Dr. P. St. L. Moncure moved that the Executive Council of the State Society and the Secretary of the Medical Examining Board be empowered to make such changes in phraseology of this report, to expend such funds, or employ such counsel as they may deem necessary in order to put in proper legal form the report of the Committee on Revision of the Present Medical Practice Act.

Furthermore, that if in their judgment the time seems propitious, the legislative committee be directed to present to the next legislature an amendment to the present Medical Practice Act embodying this report. This motion was seconded and adopted.

COMMITTEE ON PROFESSIONAL RELATIONS: Dr. L. T. Price reported that, in accordance with the resolution adopted at the last annual meeting, he became Chairman of the Professional Relations Committee and appointed several doctors from each congressional district to assist in this work. He stated that he had reports from each congressional district except the first, with favorable reports from all candidates except one, who proposes to offer a bill for chiropractors. He stated that whoever was to succeed him should follow up and continue this work in the legislature. The report was ordered received and filed.

Under new business, Dr. Percy Harris presented the following resolution from the Albemarle County Medical Society:

The Albemarle County Medical Society proposes the following resolutions:

BE IT RESOLVED: That the Medical Society of Virginia request the State and County Health Boards, State Institutions and County Organizations to co-operate with the general practitioner of both the City and Rural Districts. That these physicians be given an opportunity to do the professional work for which they are equipped, and that they co-operate with the Boards, and that when patients apply for assistance to these organizations and institutions, they must have a certificate from their family physicians saying that they are worthy and financially unable to pay for needed attention before receiving treatment.

BE IT FURTHER RESOLVED: That the Medical Society of Virginia urge that all State Institutions and County Organizations be provided with competent social service departments.

BE IT FURTHER RESOLVED: That a copy of these resolutions be sent to each Institution and County Organization with a request for the enactment of the above provisions.

This was freely discussed by Dr. P. St. L. Moncure, Dr. Littleton Davis, Dr. W. W. Wilkinson, Dr. Isaac Peirce, Dr. E. G. Williams (upon invitation), Dr. W. D. Kendig, Dr. P. E. Tucker, and Dr. J. A. Hodges, as to the advantages and disadvantages of the clinics throughout the state. Dr. E. G. Williams, State Health Commissioner, explained very comprehensively the relation of the State Health Department to the individual physician.

The question being put to the vote, was lost.

Dr. E. P. Tompkins then presented the following motion:

WHEREAS, The birthplace of Dr. Ephraim McDowell, in Rockbridge County, Virginia, is in no way marked, and its identification is in danger of being lost; and in view of the fame of Dr. McDowell as "the Father of Abdominal Surgery," it is eminently fitting that the location of his birth be preserved to posterity.

THEREFORE, BE IT RESOLVED, That a sum from the treasury of the Society, not to exceed \$150.00, be appropriated for the purpose of a suitable marker.

The motion was seconded by Dr. McCulloch and carried.

The chairman appointed a committee composed of Dr. P. St. L. Moncure, chairman, and Drs. N. G. Wilson and Charles R. Grandy, to look over some miscellaneous correspondence in the hands of the secretary and make a report on same at the Thursday morning session.

The House then adjourned to meet at 9 A. M., Thursday, October 20, 1927.

THURSDAY, OCTOBER 20, 1927.

The House of Delegates of the Medical Society of Virginia met at the Petersburg High School, October 20, 1927, at 9 A. M. The meeting was called to order by the President, Dr. J. Shelton Horsley, of Richmond.

The minutes of the Tuesday meeting of the Executive Council were read as follows:

Report of Executive Council.

The Executive Council of the Medical Society of Virginia held its regular meeting in Petersburg, Virginia, October 18, 1927, at 3 P. M. The meeting was

called to order by the Chairman, Dr. L. T. Price. Present: Dr. Geo. J. Tompkins, Dr. Geo. J. Williams, Dr. I. C. Harrison, Dr. C. B. Bowyer, Dr. M. T. McCulloch, and Dr. J. Shelton Horsley, President.

The minutes of the last meeting were read and accepted.

The chairman, Dr. Price, made the following statement covering certain activities as they had come to his attention during the year:

There has been only one alleged malpractice suit to handle, and that was of Dr. C. A. Simpson, of Washington, D. C., Dr. Simpson having been sued for \$20,000. This was settled out of court for \$2,000.00. There is a suit pending against Dr. T. H. Worrell, of Mount Airy, N. C., for \$25,000.00, which has been set for April 2nd, 1928.

The Committee on Professional Relations, of which I am chairman, has continued on the work assigned, as covered in resolutions passed at Norfolk meeting, and we have secured information from each and every candidate for election to the General Assembly, in November.

Certain irregularities in the practice of medicine have been dealt with from time to time, successfully obtaining conviction in each case.

The activities of the chiropractors have been in abeyance but it appears that renewed activities are about to be inaugurated, and I recommend that the chairman of the Public Policy Committee be instructed at this session to keep an eye to the situation.

Following the above report, the Secretary-Treasurer gave a financial report for the nine and one-half months of the year. This is given in report from House of Delegates on Thursday afternoon, under General Sessions.

A communication was presented from the Chairman of the Committee on Scientific Exhibits, in which it was requested that the sum of \$100 be appropriated to be used for the legitimate expenses of the activities of this committee, within its discretion. It was moved that \$100.00 be appropriated for this purpose annually.

Motion was made by Dr. Kendig and seconded by Dr. Geo. J. Williams to increase the salary of the Secretary-Treasurer to \$3,600.00 a year.

There being no further business the meeting adjourned.

LAWRENCE T. PRICE,
Chairman.

It was moved and seconded that these be adopted.

The President announced that he had appointed a committee composed of Dr. E. P. Tompkins, chairman, and Drs. O. Hunter McClung and M. T. Vaden to arrange for the placing of a bronze tablet on the birthplace of Dr. Ephraim McDowell, in Rockbridge County, Virginia, the price not to exceed \$150.00.

A report was made by the Correspondence Committee, composed of Dr. P. St. L. Moncure, Dr. N. G. Wilson, and Dr. Charles R. Grandy. In accordance with their recommendation, a letter from the chairman of the Committee on Nurses and Nursing Education of the American Medical Association, with regard to the relation of nursing to the medical profession, was referred to the standing committee on Medical Education and Hospitals. The committee further suggested the endorsement of certain recommendations embodied in a letter from the secretary of the Council on Medical Education and Hospitals of the American Medical Association with regard to undertaking "to have lectures on medical ethics

made a part of the curriculum in every approved medical school."

It was adopted by a rising vote that each invited guest at this meeting be sent a letter by the secretary, thanking them for the very interesting and helpful papers they presented our Society.

The report from the Nominating Committee was presented by its chairman, Dr. John O. Boyd, of Roanoke. The president appointed Dr. M. T. McCulloch and Dr. F. H. Smith as tellers to count the votes for president, and Dr. E. L. W. Ferry and Dr. E. P. Tompkins as tellers for the votes of president-elect. Nominations for president were Dr. J. W. Preston and Dr. E. L. Kendig, Dr. Preston being elected. Nominations for president-elect were Dr. J. Bolling Jones, Dr. Murat Willis and Dr. Clarence Porter Jones, Dr. J. Bolling Jones being elected. There was only one nomination for executive secretary-treasurer, to which position Miss Agnes Edwards was re-elected.

It was moved, seconded and adopted that, as the new By-Laws provide for councilors from the even numbered districts to be elected in the even numbered years, and several councilors from these districts had completed their service in accordance with the old By-Laws, all councilors from the even numbered districts be re-elected for a term of one year.

The following were elected as councilors from the odd numbered districts:

- 1st—Dr. R. D. Bates, Newtown.
- 3rd—Dr. Lawrence T. Price, Richmond.
- 5th—Dr. I. C. Harrison, Danville.
- 7th—Dr. Hunter H. McGuire, Winchester.
- 9th—Dr. C. B. Bowyer, Stonega.

In the absence of a vice-president, the President asked Dr. Lawrence T. Price, chairman of the Executive Council, to take the chair, as he had to leave to preside over the Scientific Session.

Dr. Southgate Leigh, Norfolk, was re-elected delegate from the Medical Society of Virginia to the American Medical Association for a term of two years; Dr. Murat Willis, Richmond, was elected to fill the unexpired term of Dr. Stuart McGuire, resigned, and Dr. J. W. Preston, Roanoke, holds over. Alternates holding over are Dr. E. C. S. Taliaferro, of Norfolk, and Dr. E. G. Williams, of Richmond.

The question of the place of the next meeting was then discussed. Dr. I. C. Harrison extended a most cordial invitation from Danville and invitations were read from Virginia Beach and the management of the new Chamberlin-Vanderbilt Hotel, now being erected at Old Point Comfort. Dr. Southgate Leigh urged that the Society meet at Cavalier Hotel, Virginia Beach, on account of the expense incident to entertaining the Society in the smaller cities. After discussion, the question was put to the vote and it was decided to accept the invitation from Danville for our next meeting. Upon motion, duly seconded, the dates were set as October 16, 17 and 18, 1928.

It was stated that the General Meeting on Wednesday adopted a resolution offered by Dr. J. Allison Hodges, requesting the House of Delegates to appoint a committee to revise the recently adopted Constitution and By-Laws. Following discussion by Drs. Southgate Leigh, W. W. Wilkinson, John O. Boyd, Isaac Peirce, F. H. Smith, Charles R. Grandy and P. St. L. Moncure, a motion was made and adopted that the in-coming president should appoint a committee of three for this work.

A resolution was adopted that the president be requested to continue the committee to investigate the Training of Midwives in Virginia.

Dr. Charles R. Grandy made a motion extending a vote of thanks and appreciation to the Dinwiddie County Medical Society, the citizens of Petersburg and the Petersburg High School for the many courtesies and delightful entertainment furnished us at this meeting. This being duly seconded, was adopted by rising vote.

Dr. Southgate Leigh moved that the president be requested to appoint committee on the Study of Cancer. This was seconded and adopted.

There being no further business, the meeting adjourned.

The Mid-Tidewater Medical Society

Held its regular quarterly meeting in the Community House at West Point, Va., October 26, Dr. James W. Smith, of Hayes Store, presiding. Dr. M. H. Harris, West Point, was at the secretary's desk. After a business session, Drs. A. W. Lewis, Ayletts, E. L. W. Ferry, Millers Tavern, and R. D. Bates, Newtown, delegates to the Petersburg meeting of the Medical Society of Virginia, gave reports on that meeting. Following this, Dr. H. F. Hoskins, of Saluda, presented a paper on "The Preparation and Treatment of the Expectant Mother", which received a very general discussion. Following the morning session, Drs. M. H. Harris and W. E. Croxton, of West Point, entertained the visitors at dinner. At the afternoon session, Dr. E. G. Williams, State Health Commissioner, spoke to the Society on "The Physician and Public Health Work". Following this talk, the Society went on record as endorsing the employment of sanitary officers for each county, or where feasible, the employment of such officers for two or more counties.

The Mid-Tidewater Society is composed of the seven counties of Gloucester, King William, King and Queen, Mathews, Middlesex, Essex and York. It was decided to invite doctors of Caroline and New Kent Counties to unite with these in a nine-county society.

The next quarterly meeting will be held in the Court House at Tappahannock, on the fourth Wednesday in January, 1928.

The Accomack Medical Society

Has been holding numerous interesting meetings this year, under the presidency of Dr. Rooker J. White, of Keller. Starting last December with the annual banquet and ladies' night, Dr. White has been holding frequent meetings which have seemed to inject renewed interest into the society. Dr. Fred J. Wampler, of the local health unit, has been elected an honorary member of the society, as well as

Dr. James H. Lofland and Dr. Edward T. Mason. During the year the society has adopted resolutions sanctioning the report of The Public Health and Education Committee, adopted by the Medical Society of Virginia, October 1926. Numerous papers and informal discussions have been heard: Dr. R. R. Nevitte on Nephritis; Dr. Jas. C. Doughty an abstract on Skin Lesions; numerous informal discussions on Abortion and Placenta Previa; Dr. J. L. Decormis a paper on Insanity; Dr. J. H. Ayres on "Ten Favored Drugs"; Dr. Fred J. Wampler on "Old Age Deferred"; Dr. O. R. Fletcher on Vaccines; Dr. J. Fred Edmonds abstracted current literature on Throat Infections, while Dr. J. H. Hiden reported on Dr. Crile's Anoci Association theory.

Resolutions of respect were read on the deaths of Dr. John E. Mapp and Dr. J. T. B. Hyslop.

Dr. R. R. Nevitte was appointed delegate to the State Society meeting with Dr. J. H. Ayres as alternate. Mrs. J. L. Decomis and Mrs. R. R. Nevitte were appointed to represent the society at the meeting of the Ladies' Auxiliary to be held at Petersburg.

The annual election of officers was held October 10th and resulted as follows: Dr. Charles Edward Critcher, New Church, President; Dr. George L. Fosque, Onancock, Vice-President; Dr. John W. Robertson, Onancock, Secretary-Treasurer (re-elected).

The society passed a resolution complimenting Dr. Rooker J. White on his successful year's work as president, and expressed its appreciation of his efforts to make the Society more interesting to its members.

JOHN W. ROBERTSON, *Sec'y.*

The Pittsylvania County and Danville Medical Society

Held its regular quarterly meeting in Danville, September 13th, with a good attendance, Dr. Charles A. Easley, of Chatham, presiding. Two invited guests, Dr. J. H. Neff and Dr. J. S. Davis, of University, Va., read papers which were freely discussed. A resolution was adopted to invite the Medical Society of Virginia to hold its 1928 meeting in Danville. (As noted elsewhere in this issue, the invitation was later accepted by the State Society). The next meeting of this society will be held in Danville, December 12th. Dr. J. A. Hawkins, Danville, is secretary of the society.

The Mecklenburg County Medical Society

Met at La Crosse, early in October with a

good attendance and several matters of interest were discussed. Dr. W. L. Varm, of South Hill, and Dr. B. S. Yancey, of Chase City, were elected members. Drs. W. W. Wilkinson and W. T. Dodd were elected delegate and alternate, respectively, to the State Society meeting held in Petersburg in October. Dr. W. W. Wilkinson, La Crosse, was re-elected president, Dr. C. V. Montgomery, South Hill, was elected vice-president, and Dr. A. T. Finch, Chase City, secretary. The next meeting will be held in Chase City in April, 1928.

The Roanoke Academy of Medicine,

At its meeting on October 3rd, elected the following officers for the ensuing year: President, Dr. J. T. McKinney, vice-presidents, Dr. George S. Hurt and Dr. Fred E. Hamlin; secretary-treasurer, Dr. H. H. Wescott, all of Roanoke. Dr. G. G. Rhudy, of Roanoke, was unanimously elected to membership at this meeting.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

To the Members of the Auxiliary and Prospective Members.

The Auxiliary to the Medical Society of Virginia, held its fifth annual meeting in Petersburg, October 18, 19 and 20, during the session of the State Medical Society, with the largest attendance in its history.

The opening meeting was held at the Petersburg Country Club on Tuesday, with a lovely luncheon given by Mrs. Edwin J. Nixon, President of the Auxiliary to the Dinwiddie County Medical Society. This luncheon was in honor of the Executive Board which met immediately afterwards, with the President, Mrs. Southgate Leigh, presiding.

Reports were heard from District Chairmen and County Auxiliary Presidents.

One County reported 107 members with sixty subscriptions to *Hygeia*.

Recommendations were read by the President and plans were made for the year's work.

Resolutions were adopted on the death of our first President, Mrs. R. Lloyd Williams.

The general session was held at the Y. M. C. A. on Wednesday morning.

The meeting opened with an invocation by Rev. J. Edwin Hemphill and a splendid address of welcome by Mrs. W. C. Powell, of Petersburg. The response was given by Mrs. Walter J. Adams, of Norfolk.

Dr. J. Shelton Horsley, President of the Medical Society of Virginia, delivered the principal address of the day, followed by Dr. J. Warren White, Vice-President, whose subject was "Advantages of an Auxiliary to the Medical Profession". "State Health" was discussed by Col. C. R. Keiley, of the State Health Department, who asked each member to go home and study health conditions in her County. Dr. Clarence Porter Jones gave the history of Dr. Walter Reed. "Family Social Work and Child Welfare" was the subject of a talk by Miss Helen Story.

A gavel made from the wood supporting the Confederate Tunnels was presented to the Auxiliary, by a young son of the owner, with an invitation to visit the Tunnels. The President thanked him with all her heart and said "I feel sure this gavel will lead the Auxiliary to success in all its undertakings."

The meeting adjourned at one o'clock to attend a lovely luncheon given by the Woman's Auxiliary to the Dinwiddie County Medical Society. This was a most delightful and enjoyable affair. Besides songs and toasts to "Our Guests", "Our President", "Our Husbands" and "Our Chairman of Entertainment", each guest was presented with a beautiful corsage, after which they were taken for a drive to visit a number of historical points of interests.

Wednesday evening there was a beautiful reception and dance given at the Country Club, with a delicious midnight supper.

Thursday the Auxiliary convened again in the Y. M. C. A. Dr. Southgate Leigh, of Norfolk, gave a talk on "Telling the True Story of Medicine to the Public."

The report of the delegate to the American Medical Association, Mrs. F. W. Upshur, of Richmond, and report of the delegate to the Southern Medical Association, Mrs. W. P. McDowell, of Norfolk, were both greatly enjoyed.

After the "message" brought by the President, the meeting was devoted to business and hearing of reports. The meeting adjourned

with grateful resolutions of thanks to the splendid women of Petersburg, all voting a most enjoyable time.

A Fashion Revue was held for the ladies in one of the leading stores and was well attended.

Thursday evening was devoted to a theatre party given by the Dinwiddie County Woman's Auxiliary.

Officers of the Woman's Auxiliary to the Medical Society of Virginia are:

President, Mrs. Southgate Leigh, Norfolk; president-elect, Mrs. F. W. Upshur, Richmond; first vice-president, Mrs. Edwin J. Nixon, Petersburg; second vice-president, Mrs. T. J. Hughes, Roanoke; third vice-president, Mrs. Don Peters, Lynchburg; secretary-treasurer, Mrs. E. F. Truitt, Norfolk; State Editor, Miss Agnes V. Edwards, Richmond.

Standing committees—Education and Publicity, Mrs. T. J. Hughes, Roanoke; *Hygeia*, Mrs. Louis Berlin, Norfolk; legislative, Mrs. J. W. Preston, Roanoke; parliamentarian, Mrs. R. L. Payne, Sr., Norfolk; State organization, Mrs. Fletcher J. Wright, Petersburg, with Mrs. W. C. Powell, Petersburg, as assistant organizer.

Some of auxiliaries organized: Woman's Auxiliary to the Richmond Academy of Medicine—President, Mrs. Francis Whittle Upshur, Richmond; Woman's Auxiliary to Norfolk and Princess Anne County Medical Society—president, Mrs. Burnley Lankford, Norfolk; Woman's Auxiliary to Lynchburg and Campbell County Medical Society—president, Mrs. Musgrave Howell, Lynchburg; Woman's Auxiliary to Rockbridge County Medical Society—president, Mrs. F. M. Leech, Lexington; Woman's Auxiliary to Danville and Pittsylvania County Medical Society—president, Mrs. Lawrence O. Crumpler, Danville; Woman's Auxiliary to the Dinwiddie County Medical Society—president, Mrs. Edwin J. Nixon, Petersburg; Woman's Auxiliary to Botetourt County Medical Society—president, Mrs. E. W. Dodd, Buchanan; Woman's Auxiliary to Warwick and York Counties Medical Society—president, Mrs. J. K. Corss, Newport News.

District Chairmen—First District, Mrs. Griffin Hollond, Eastville; second district, Mrs. Walter Adams, Norfolk; third district, Mrs. Fred Hodges, Richmond; fourth district, Mrs. Fletcher J. Wright, Petersburg; fifth district, Mrs. J. C. Giles, Danville; sixth district, Mrs.

A. W. Terrell, Lynchburg; seventh district, Mrs. Hunter McGuire, Winchester; eighth district, Mrs. H. T. Miller, Washington, D. C.; ninth district, Mrs. E. G. Gill, Roanoke; tenth district, Mrs. M. T. Vaden, Buena Vista.

Correspondence

Why Young Doctors Should Locate in the Country.

*Glen Allen, Va.,
October 12, 1927.*

TO THE EDITOR:

I was prompted to write this article in response to the one published by Dr. W. W. Kerns, Bloxom, Va., in the September, 1927, issue of the VIRGINIA MEDICAL MONTHLY. The subject of his article was "Why the Young Physicians Are Not Locating in The Country."

This article is not intended to create any feeling against Dr. Kerns—or any of the gentlemanly, self-sacrificing family practitioners—but to correct the false impression his writing will create and place the blame for bad medical conditions where it belongs.

"O wad some Power the giftie gie us
To see ourself as ithers see us!"

The old-time family practitioner was picturesque in his day, and I am led to believe Dr. Kerns belongs to this nearly extinct class of doctors. They have never changed with the times. Their methods of dealing with the public were and are fine for the people, but are d—n hard on the younger doctors. Their kindness, goodness, and self-sacrificing have made them poorer each year and some of them bitter in their old age. A young doctor settling in territory dominated by them finds it very hard to get a start, collect what he earns and maintain the respect he should have from the people at large.

This condition is due to the fact that they pet and pauperize their patients. They never take a post-graduate course to brush up. They never take a vacation until they break down. They wear themselves out serving people who receive pay according to the scale of 1927 and charge—I say charge—the same fees as were in vogue in 1890. They are often careless in making their charges. Many of these old practitioners never send a bill and seemingly make no effort to collect the accounts due them, or just send out bills every six or twelve

months. I don't know whether it is the fear of losing practice, carelessness, or a desire to make the contrast greater between them and their younger competitors. Nevertheless, in any locality it will pay the doctor at all times to adopt good business methods in handling his accounts and dealing with his patients, allowance being duly made for charity and semi-charity.

The country needs more doctors. Young doctors want good places to begin practice. A young doctor before settling at any country place should consider the roads, telephone service, schools, churches, estimate the number of people in a twelve-mile radius, railroads, telegraph office, and be in fifty miles of a good hospital. If possible there should be a few smoke-stacks of industries in this twelve-mile radius, and, lastly, determine as best he can if there is an opening for another doctor in that territory. He should drive over the district and ask a few persons at random about how long they have to wait for a doctor after calling one. People, country people in particular, delight in telling about and calling when they are sick a doctor who makes his calls promptly even if they have to pay him more and on the spot, than the doctor who makes some of them wait until the next day and he wait a year for his pay.

There are plenty of good locations for young doctors in the country. The cream of the graduating classes of medical colleges for the past thirty years have located in the cities and have taken up specialties. Some have done well. Others are paying out the major portion of their incomes for rent. At any rate, they have kept up with the times. They have torn down the old fire-trap buildings used as hospitals and have built them up again and others besides—modern and fireproof. They have advanced themselves equally as much along social and new medical lines. The result is, many country people who can afford it are going to the cities for diagnoses and treatment other than major surgical conditions. Many of these people would not leave their homes if they thought they could be properly diagnosed and treated there. The country doctor is asleep if he does not have them as his patients. If they need special treatment or special facilities for diagnosis or hospitalization he should direct them where these things can best be had. Before doing this,

however, he should exhaust all the means at his command. Many practitioners are prone to pass along their cases before they are properly studied and not infrequently these patients are put to an unnecessary expense for conditions that did not need these special things. In fact one should do a little work and thinking in the country. In my experience more medical mistakes come from carelessness, laziness and a lack of thorough examination than from a lack of knowledge. Of course, the one best way in any labor, business or profession to make more is to earn more. It is necessary for a general practitioner, even a country one to form affiliation and keep in contact with a good group of specialists and a good hospital. A general practitioner has all kinds of cases in his practice and for the good of his patients and himself he often must have help, hospitalization and consultation for them. Dr. Kerns knows this, I believe, but expresses himself only in terms of comparison of fees.

The country is more attractive now to the young doctor than it ever has been before. We have good roads, these are being improved as the years go by, the best radio reception, rural telephones, the automobile and electricity. I have every convenience in my home and office that my city brother has and, in addition, I have fresh fruits, vegetables, honey, poultry, milk, butter and eggs raised on my own place, and, lastly, the best of all, a freedom that is found only in the country.

Dr. Kerns feels that the country doctor is not paid enough and the surgeon is paid too much. Few of my cases are ever charged over \$150.00 by the surgeon for a major operation. The \$500.00 cases are "rare birds". A surgeon to operate and a specialist to treat my pay cases must look after my charity cases for nothing. If they are able to pay hospital bills only, neither the surgeon nor the specialist renders a bill. If they can not pay anything I send them to the State institutions. Dr. Kerns says he makes a night call, usually driving an average of five miles each way, diagnoses the case, sends the case to the hospital; from half of the cases he collects \$5.00 and the surgeon collects from \$50.00 to \$500.00. The reason he does not get more is his own fault. If I had a patient able to pay a surgeon \$500.00 or even \$100.00 for an operation, I wouldn't make a night call to him for \$5.00

I would charge him \$7.50 to \$10.00 for the call if it be at night, relieve the patient, determine if a hospital case or not and if so arrange by 'phone for a place in hospital, take the patient to the hospital at once, or next morning, depending on the urgency of the case and charge for my time, services and expense incurred. During the time the patient is in the hospital I have the family come to me at my office hours to find out how the patient is getting on and I get the patient away from the hospital as soon as he or she can be moved with safety, and treat the patient afterwards.

Dr. Kern's \$5.00 night call fees remind me of the story where a doctor and his car were used as a complete taxi on a fake call because his charges were less than for a fare. When a doctor charges less for calls than a taxi driver does for fares, he should go into the taxi business, for his medical training is useless to himself and he is giving his services away. Another common mistake is when the doctor does not demand cash for single call cases that can be paid as easily one time as another.

Now, to talk of fee-splitting. That is absurd, mean, little and would react to the patients' disadvantage if practiced. What self-respecting doctor would accept a fee for something he did not do? I do not doubt that if fee-splitting were in vogue state medicine would be next. A surgeon acting as partner and operating for say fifty doctors, meaning fifty partnerships, paying out unearned money would charge by necessity 50 to 100 per cent more for his operation, and the patient would have to pay it. Surgeons that do my operating are the type of men that live and let live. I know my patients' financial condition better than anyone else and I see that the surgeon and the specialist do not work a hardship by overcharging; neither do I allow my patients to impose on them. The doctor can render valuable service by seeing that all—the patient, surgeon, specialist and himself—get a square deal and in this way keep all satisfied and enhance his services, but he should charge to and collect his pay from the patient direct.

After you have diagnosed your surgical case it is very comforting to the patient to have you go with him or her to the hospital, stand by them when they are going under the anaesthetic, go to the family representatives in hospital waiting-room and explain the case to

them, reassure them if all is well, warn them if the skies are gloomy, later talk to the surgeon about the case, compare your clinical picture to the surgical findings. All this helps to make us better doctors.

Dr. Kerns intimates that the State Board of Health is taking from the country practitioners some of his practice. I wish to point out briefly some of the many advantages of the State Board of Health and the County Health Unit.

First—They relieve us of many of the disagreeable experiences connected with the enforcements of quarantine.

Second—They give free consultations in any case in question of communicable diseases.

Third—They assume responsibility for vaccination against smallpox and of school children, etc.

Fourth—They take entire responsibility for treatment and hospitalization of smallpox cases, etc.

Fifth—They render invaluable services to us and our patients through the free use of the State laboratory.

Sixth—They control the “grannies”, both white and black.

Seventh—They sell us serums at cost.

By state law we are paid up to \$100.00 per case for immunizing treatment of persons bitten by rabid animals.

The workmen's compensation law is of great benefit to the employees and to the doctors.

I am proud of our State Board of Health and County Health Units.

All doctors have to report deaths, births and communicable diseases that occur in their practices but more leniency seems to be shown the country doctor in making these reports than those that live in the city.

If a young doctor locates in the country and “decently starves” it is his own fault. If he is a hustler and does not make at least \$10,000.00 a year, he is either a poor doctor or a sorry business man, or should change his location. If he is a poor doctor, he should go back to medical school awhile. If he is lazy, he should get a commission in the Medical Corps of the U. S. Army and resign when the United States declares war. If his location is poor, he should change it. If he can not find any other place, he might go up into the New England states where they are offering a doctor \$2,500.00 a year just to locate and

all he makes extra. If he is a poor business man, he should read the “Business Side of the Practice of Medicine” by the writer, as published in February, 1926, issue of VIRGINIA MEDICAL MONTHLY, present himself to the receiving teller every Monday morning and consult the cashier before he invests.

My opinion is that a man's success depends on himself mostly, and the young doctor that settles in the country and starves would probably be a dishwasher if he settled in the city.

I invite anyone to my office and home in the country and will show my accumulations and demonstrate my methods. It works.

Do not pity the country doctor but more of you younger doctors come and locate in the country and let us endeavor to keep country medical conditions abreast with the times.

ALEXANDER McLEOD, M. D.

Gloucester Doctors Interested in Preventive Medicine.

October 6, 1927.

TO THE EDITOR:

I read in the recent number of the MONTHLY the article by Dr. W. W. Kerns. This letter hardly represents the sentiments of the average practitioner in Virginia.

I enclose copy of a letter from Dr. James W. Smith, of Gloucester County which I think much more nearly expresses the sentiments of our doctors. I would, therefore, appreciate your printing it.

ENNION G. WILLIAMS,
State Health Commissioner.

Hayes Store, Va.,
Sept. 27, 1927.

DR. ENNION G. WILLIAMS,
RICHMOND, VIRGINIA.

DEAR DOCTOR:

I just ran across a letter received in August, 1927, from Dr. Horsley, regarding the Medical Profession of Virginia and State Medicine. But I don't think this letter applies to our profession in Gloucester, for we have always taken the initiative in preventive medicine in Gloucester.

Over three years ago I went before the Board of Supervisors of Gloucester County and asked them to pay for giving toxin-antitoxin to about three hundred children in the lower part of the county where diphtheria was so prevalent and had been for years, which they consented to do, and we gave it to the children. I think we were almost pioneers in giving it to so many children at one time, although we didn't get any write-up about it.

I gave the first dose of typhoid serum that was given in this county. When I came here in 1911, typhoid, malaria and diphtheria kept a doctor on the go night and day. And now a doctor would

starve if he had to depend on these diseases for practice. It wasn't but one thing to do, and that was cut disease down and raise the fees. When I came here, office calls were 50c, day visits \$1.00 to \$2.00, night visits \$2.00, obstetrical fees \$5.00 to \$10.00, but mostly \$5.00.

Today our fees are, office \$2.00, day visits \$3.00, night visits \$6.00, obstetrical \$25.00 to \$50.00; and sickness is so little that one doctor can attend to half the county.

All four of the white doctors attended the American Medical Association in Washington. All four of the white doctors took vacations this summer from one week to two weeks.

This spring I got to work and lined up the doctors of seven counties and we formed the Mid-Tide-water Medical Society. We have a membership of twenty-one doctors and are having some good meetings. Dr. Harris, of West Point, is the Secretary and I am the President. Our next meeting is in West Point, on the 26th of October. We would be glad for you to come down and meet a whole lot of pure country doctors. If you think you could come, please let Dr. Harris or me know.

My next year's work will be trying, with your help, to get a sanitary toilet at every home in Gloucester. This is a crying need all over the county. There is not one home in one hundred so equipped, I think. With your help I can bring it up before the doctors of seven counties.

Don't you know I heard you over W. R. V. A. sometime ago say that Moses commanded every Jew to dig a hole and to bury the refuse from his body?

Hoping to see you in Petersburg, I am,

Very truly,

JAMES W. SMITH.

Walter Reed Memorial Commission Makes an Appeal.

Newport News, Va.,

Nov. 1, 1927.

TO THE READERS OF THE VIRGINIA MEDICAL MONTHLY:

The Walter Reed Memorial Commission is in need of \$800 balance to pay the contractor for the restoration of Belroi, Gloucester County, Virginia, the birthplace of Walter Reed.

The property has been purchased and paid for; the deed is recorded; the property is being held by the commission for the Medical Society of Virginia.

The work of restoration of the house, which was in a wretched state of decay, is finished and the house has been opened to the public. There remains to be erected a fence around the property, also the rebuilding of the log kitchen, for which \$1,500 will be needed.

Arrangements will be made to send each person who contributes as much as five dollars, free of charge, a piece of wood taken from the building, together with a small photograph of the premises.

Please make your check as large as possible,

payable to the Walter Reed Memorial Commission, and mail to the undersigned promptly.

CLARENCE PORTER JONES,
Secretary and Treasurer.

Bibliotheca Obstetrica

Francois Mauriceau.

Mauriceau (Francois) [1637-1709]. *Traité des maladies des femmes grosses, et de celles qui sont accouchées; enseignant la bonne et véritable méthode pour bien aider les femmes en leurs accouchemens naturels, et les moyens de remédier à tous ceux qui sont contre nature, et aux indispositions des enfans nouveau-nés; avec une description très-exacte de toutes les parties de la femme qui servent à la generation; le tout accompagné de plusieurs figures convenables au sujet. Ouvrage très-utile, aux chirurgiens, et nécessaire à toutes les sages-femmes, pour apprendre à bien pratiquer l'art des accouchemens.* 6 édition, corrigée par l'auteur, et augmentée de plusieurs nouvelles figures, et de beaucoup d'observations très-considérables, avec des aphorismes qui contiennent tous les principaux préceptes de l'art. 2 v. 5 p. 1., 555 pp., 12 l., 2 p. 1., 572 pp., 6 l. 4°. *Paris, par la Compagnie des libraires associez, 1721-8.*

Title of second volume: *Observations sur la grossesse et l'accouchement des femmes, et sur leurs maladies et celles des enfans nouveaux-nez; en chacune desquelles les causes et les raisons des principaux evenemens sont décrites et expliquées.* Nouv. éd.

Dernières observations sur les maladies des femmes grosses et accouchées. 77 pp. 4°. *Paris. Compagnie des libraires associez, 1715. Bound with his: Observations sur la grossesse et l'accouchement des femmes, etc.*

For Biography, see Robb (H.) *The writings of Mauriceau. Johns Hopkins Hosp. Bull., 1895, v, 51-57, 1 pl.*

Case xxvi is perhaps the first account of a forceps operation. Dr. Hugh Chamberlen (1630-1706) had been in Paris six months trying to sell the family secret; the invention of his great-uncle, Peter Chamberlen, Sr. to M. le premier Medicin du Roy for 10,000 écus. Mauriceau had in his care a very small woman who had been in labor 8 days and whom he was unable to deliver. Her pelvis was so small

des Femmes, & sur leurs maladies.

23

O B S E R V A T I O N X X V I.

D'une femme qui mourut avec son enfant dans le ventre, qui n'en pût jamais estre tiré par un Medecin Anglois qui avoit entrepris de l'accoucher.

LE 19. Aoust 1670. j'ay vû une petite femme âgée de 38. ans, qui étoit en travail de son premier enfant depuis huit jours, ses eaux s'étant écoulées dès le premier jour qu'elle avoit commencé à se trouver mal, sans presque aucune dilatation de la matrice. Etant restée en cet état jusques au quatrième jour, je fus mandé pour en dire mon sentiment à sa Sagefemme, à laquelle je conseillay de la faire saigner; & au cas que la saignée ne produisist pas le bon effet que l'on en pouvoit esperer, de luy faire prendre l'infusion de deux drachmes de sené, pour luy provoquer les douleurs qu'elle n'avoit point; ce qui fut fait le jour suivant, & réussit assez bien, ce remede luy ayant excité des douleurs qui dilaterent la matrice autant qu'il étoit possible. Néanmoins pour tout cela elle ne put jamais accoucher, & son enfant qui venoit la teste devant, mais la face en dessus, resta toujours au même lieu, sans pouvoir avancer au passage, que cette femme, qui étoit très-petite, avoit tellement étroit, & les os qui le forment si ferrez & proches l'un de l'autre, & l'os du croupion si recourbé en dedans, qu'il me fut entierement impossible d'y introduire ma main pour l'accoucher, quoy que je l'aye assez petite, lorsque je fus mandé pour luy donner ce secours, trois jours ensuite de la premiere fois que je l'avois vûe; de sorte qu'y ayant tâché inutilement il ne me fut pas possible d'en venir à bout, ne pouvant introduire ma main qu'avec un extrême-effort, à cause de l'étroitesse du passage d'entre les os, & l'ayant introduite elle se trouvoit si serrée, qu'il m'étoit impossible d'en remuer seulement les doigts, & de la faire avancer assez pour pouvoir conduire un crochet avec sureté, afin d'en tirer cet enfant, qui étoit mort depuis près de quatre jours, suivant l'apparence; ce qu'ayant essayé je declaray l'impossibilité d'accoucher cette femme à tous les assistants, qui en étant bien persuadez, me prièrent de luy tirer son enfant du ventre par l'operation Césarienne, laquelle je ne voulus pas entreprendre, sçachant bien qu'elle est toujours très-certainement mortelle à la mere. Mais après que j'eus laissé cette fem-

that he could introduce his hand only with great difficulty and then was unable to adjust a crochet. Cæsarian section was considered to be almost certainly fatal. Dr. Chamberlen offered to deliver this woman in less than 15 minutes and Mauriceau consented to his trying his skill (and instrument). After three hours of strenuous efforts Chamberlen had to confess his inability to deliver the woman. The woman died 24 hours later and, at autopsy, Mauriceau found a badly lacerated cervix (*la matrice toute déchirée and percée en plusieurs endroits par les instruments dont ce Medicin s'étoit servi avenglement sans la conduite de sa main*).

Judged by the standards of present day ethics the Chamberlens stand out as arch quacks. The jealously guarded family secret, the extravagant claims of being able to deliver any woman in a few minutes, the squabbles with the Royal College of Physicians over the control of the education of midwives in London which extended into two generations, the tire-some public letters in connection with the various schemes from public baths to land banks for the betterment of the public and their own purses, were more than enough to ostracize the family professionally, had modern ethics pertained in the 17th and 18th centuries. But such was not the case. Some years after this episode this same Dr. Hugh Chamberlen sold his secret to Rogier van Roonhuyze. The Medical-Pharmaceutical College of Amsterdam, which had the sole privilege of licensing physicians, to practice in Holland, sold, under the pledge of secrecy and for a large sum, Chamberlen's invention to each physician it licensed.

As further evidence that Chamberlen's methods did not bring him into disrepute, Mauriceau relates that a few days later, before departing for London, Chamberlen paid him a visit, and complimented him on his book on midwifery. He took this book back to London with him where he published, in 1672, an English translation. Mauriceau goes on to say that this translation brought Chamberlen so great a reputation in London that his income was said to be 30,000 livres.

Very little is known of Mauriceau, save that he was born in Paris, was a Master of Arts and a Master Surgeon. He was the outstanding obstetrician of his time and his book was long the standard work on obstetrics and went

through many editions in several different languages. Hunter Robb says of him that he was a good, honest man, distinguished rather for his common sense than for his brilliancy.

M. P. R.

The Truth About Medicine

In addition to the articles enumerated in our letter of August 27th, the following have been accepted: E. Billhuber, Inc.

Bromural.

Parke, Davis & Co.

Diphtheria Toxin-Antitoxin, 0.1 L+—P. D. & Co. Swan-Myers Co.

Capsules Ephedrine Hydrochloride—Swan-Myers, 0.05 Gm.

NEW AND NONOFFICIAL REMEDIES

Acetarstone-Abbott.—A brand of acetarstone—N. R. R. For a discussion of the actions, uses and dosage of acetarstone, see New and Nonofficial Remedies, 1927, p. 83. This product is supplied in substance and in 0.25 Gm. tablets. Abbott Laboratories, North Chicago.

Erysipelas Streptococcus Antitoxin (Concentrated) Mulford.—An erysipelas streptococcus and antitoxin (New and Nonofficial Remedies, 1927, p. 337), prepared by injecting horses intradermally with strains of hemolytic streptococci isolated by H. Amoss from human cases of erysipelas lesions, bleeding the horses and when test bleedings show the serum to have reached the desired potency, separating the serum, sterilizing it, and preserving by the addition of 0.35 per cent of phenol. The product is then concentrated by a process which preserves both the antitoxic and antibacterial properties claimed to be in the original serum. The product is marketed in packages of one 20 c.c. syringe. H. K. Mulford Co., Philadelphia.

Cholera Bacterin (Cholera Vaccine).—Th's cholera vaccine (New and Nonofficial Remedies, 1927, p. 358) is also marketed in packages of one 20 c.c. vial containing 1,000 million killed cholera vibrios per c.c. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., September 10, 1927, p. 883).

Iodoxybenzoates.—Iodoxybenzoic acid resembles salicylic acid, chemically differing in that the hydroxyl group of the latter has been replaced by an iodoxy group. The known actions of the salts of iodoxybenzoic acid, as developed by investigators, led up to its clinical application by Young and Youmans in the treatment of arthritis. The investigators, in their introduction of the substance, used the sodium salt or ammonium salt prepared extemporaneously; later, they recommended the use of ammonium iodoxybenzoate. The salts of iodoxybenzoic acid are indicated chiefly in arthritis. They are reported to be preferably administered intravenously; however, for cases in which the drug cannot be given intravenously, oral administration and administration by high enema have been employed and found effective.

Amiodoxyl Benzoate.—Ammonium o-iodoxybenzoate.—The ammonium salt of 2-iodoxybenzoic acid. The latter differs from orthohydroxybenzoic acid (salicylic acid) in that the hydroxyl group is replaced by the iodoxy group. It contains 42.7 per cent of iodine. For a discussion of the actions and uses, see the preceding article "Iodoxybenzoates."

Amiodoxyl Benzoate—Abbott.—A brand of amio-

doxyl benzoate—N. N. R. Abbott Laboratories, North Chicago.

Capsules Ephedrine Hydrochloride—Swan-Myers, 0.05 Gm.—Each capsule contains Ephedrine Hydrochloride—Swan-Myers (Jour. A. M. A., April 16, 1927, p. 1235) 0.05 Gm. Swan-Myers Co., Indianapolis.

Ephedrine Sulphate—Abbott.—A brand of ephedrine sulphate—N. N. R. For a discussion of the actions, uses and dosage of ephedrine sulphate, see THE JOURNAL A. M. A., March 19, 1927, p. 925, Abbott Laboratories, North Chicago. (Jour. A. M. A., September 24, 1927, p. 1061).

PROPAGANDA FOR REFORM

Artificial Ripening of Fruits by Ethylene.—While the use of ethylene as a means of ripening fruit is of growing commercial importance the health phases have not yet been thoroughly considered. Certain fruits and vegetables are recommended by physicians largely because of their vitamin content; whether or not this is altered by ethylene has not been determined. Possibly, also, the fruits and vegetables may be picked earlier than is the practice today, thus shortening the period of irradiation by the sun. Physicians may well watch the development of this form of food enterprise; perhaps the time may come when certain every day foodstuffs will be purchased on the basis of vitamin units. In the meanwhile, the use of vitamin-containing products in as near a "naturally ripened" condition as possible should be encouraged when used for prophylaxis against avitaminosis. (Jour. A. M. A., September 3, 1927, p. 792).

Treatment of Pernicious Anemia.—Minot and his co-workers report good results in the treatment of pernicious anemia by means of a diet composed especially of foods rich in complete proteins and iron—particularly liver—and containing an abundance of fruits and fresh vegetables and relatively low in fat. Koessler and his associates believe that in some cases, at least, the phenomena accompanying pernicious anemia are the result of long continued deficiency in vitamin A and possibly also in vitamins B and C and propose the treatment of pernicious anemia with a high caloric diet rich in vitamins. Therefore Minot and Koessler would prescribe an adequate general diet, including a large quantity of liver and kidney. Minot and his co-workers would reduce the fats whereas Koessler and his associates declare that butter, cream, milk and cod-liver oil should be partaken of in large amounts. Macht reports that the blood serum of patients with pernicious anemia contains a toxin, and that this blood serum can be detoxified by irradiation with ultraviolet rays. Furthermore, he found that the effect of ultraviolet rays could be increased by introducing into the serum to be treated dyes which act as sensitizers. Since liver is the storehouse for blood pigments, some of these pigments may help increase the effectiveness of light and thus some of the good effects of liver diet may be connected with the liver pigments that are administered. (Jour. A. M. A., September 3, 1927, p. 793).

Phosphobion Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Phosphobion, manufactured by Dr. Theodor Koenig, Munich, Germany (Carl F. Lauber, Philadelphia, distributor), are pills, each stated to contain zinc phosphide, 0.0025 Gm., and iron glycerophosphate, 0.03 Gm. According to the advertising, Phosphobion represents a new treatment for sleeplessness. It is claimed that sleeplessness is caused by a deficiency of phosphorus in the organism and that the phosphorus in Phosphobion has the power of supplying this deficiency. No evidence is offered in favor of the theories on which the claimed action of Phosphobion is based, nor convincing evidence in favor

of its claimed action. The Council found Phosphobion unacceptable for New and Nonofficial Remedies because it is an unscientific mixture of drugs marketed under a nondescriptive name with claims that are not supported by acceptable evidence and in a way to lead to its ill-advised use by the laity. (Jour. A. M. A., September 3, 1927, p. 809).

Digitalization.—The term "digitalization" was coined to signify the full pharmacologic action of the drug to the limit of safety. Laboratorial and clinical investigations have developed the digitalization amount of digitalis to be, for a 150 pound (68 Kg.) adult weight, a minimum of 22½ grains (1.45 Gm.) and a maximum of 33 grains (2.2 Gm.). Half the minimum dose may be given at once and then 2 or 3 grains (0.13 to 0.2 Gm.) every six hours, or the other half of the minimum dose may be given on the second day. If the patient needs more digitalis for digitalization, the amount is gradually increased by 2 or 3 grains, perhaps every six hours, until symptoms of digitalization appear. Digitalization should not be attempted if the patient has previously been taking digitalis. The dosage advised, must of course be greatly modified with frail, underweight persons. An overweight person, when that weight is largely due to fat, must not be given doses according to his weight. The condition of the patient must also be taken into account. Digitalization means digitalis poisoning. Such poisoning should not be inaugurated except by a careful determination of the exact condition of a patient to be treated. The general practitioner should not thoughtlessly digitalize his patient unless he has hospital or other facilities for determining the exact condition of his heart and his excretory ability. (Jour. A. M. A., September 10, 1927, p. 884).

The Standard Laboratories Fiasco.—About thirteen years ago a concern known as the Truax Laboratories was operating in Chicago. Its method was to sell to dispensing physicians individual packages containing stock prescriptions. When the physician had spent \$100 with the Truax Laboratories, he received a "profit-sharing debenture of \$25." Later the name of the concern was changed to "Standard Laboratories, Inc.," and the methods of doing business were also changed. The Standard Laboratories, Inc., got dispensing physicians to deposit \$100 with it, which was to be "taken out" in drugs. When the doctor had bought \$100 worth of drugs he was issued a "\$25 debenture profit-sharing certificate" that was worth nothing until 30,000 of them had been issued, at which time it would be accepted as stock in the company. In 1919, when the Standard Laboratories wished to advertise in The Journal of the American Medical Association, it was told that its methods were not such as would commend themselves to the ethical conscience of the profession. It was pointed out that the Principles of Medical Ethics states that "it is unprofessional . . . to accept rebates on prescriptions." Patently, the physician who held stock in the Standard Laboratories or who shared in its earnings was, in effect, accepting a rebate every time he prescribed its products. Present interest in this matter is stimulated by a small news item to the effect that Standard Laboratories, Inc., had just filed a voluntary petition in bankruptcy in the United States District Court. (Jour. A. M. A., September 10, 1927, p. 886).

Ago-Cholan Tablets.—The statements made by E. Bilhuber, Inc., regarding the composition of Ago-Cholan are contradictory and indefinite. An advertising card sent out during 1926 gives "strontium cholo-salicylate" as a synonym. An advertisement published the same year declares that "chemically it is strontium-cholosalicylate to which is added a small quantity of phenolphthalein-diacetate . . ."

A circular received in 1925 gives the following "composition": "Ago-Cholan contains as its active principle the combined cholic and salicylic acid salts of strontium (2 grains in each tablet) and a small quantity of phenolphthalein-diacetate (0.2 grain)." From the latter statement one may conclude that the "strontium cholasalicylate" is nothing more than a mixture of the cholic and salicylic acid salts of strontium in unstated proportions. Available books on therapeutics do not refer to the use of phenolphthalein diacetate. E. Bilhuber, Inc., has not requested an examination of the product by the Council on Pharmacy and Chemistry, and so far the Council has not examined the product or the claims that are made for it. (Jour. A. M. A., September 10, 1927, p. 901).

The Administration of Calcium Salts.—The intravenous and subcutaneous administration of calcium are attended with dangers or discomfitures; therefore the possibilities of the oral route call for careful consideration. A survey of the literature on the absorption of calcium as it may be reflected in a change in the blood concentration of the element might leave one unconvinced of the efficacy of administering calcium compounds by mouth. Many clinicians have accordingly abandoned the practice. More recent studies give evidence, however, that with due attention to the conditions of administration it is possible to elevate the serum calcium concentration by the oral route of calcium supply. Experiments indicated that the optimal dose of calcium lactate is 5 Gm. and that the drug must be given in aqueous solutions when the digestive tract is comparatively empty; that is, either before breakfast or several hours after food has been consumed. Larger doses prevent optimal absorption. (Jour. A. M. A., September 17, 1927, p. 968).

Gelobarin Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Gelobarin is the trademarked name under which the Powers-Weightman-Rosengarten Company markets a mixture of barium sulphate and water, containing approximately 40 per cent of barium sulphate. The preparation is proposed for use in radiologic examinations. The Council found Gelobarin unacceptable for New and Nonofficial Remedies because it is an unoriginal product that is offered under a proprietary, nondescriptive name. (Jour. A. M. A., September 17, 1927, p. 984).

Methenamine.—Methenamine is the name adopted by the U. S. Pharmacopeia, Tenth Revision (which became official a year and a half ago), for Hexamethylenetetramine, described in the previous Pharmacopeia as Hexamethylenamine. (Jour. A. M. A., September 17, 1927, p. 987).

Yeast.—Yeast is rich in vitamin B. This is the only vitamin which it contains in important quantity as far as is known at present. According to New and Nonofficial Remedies, 1927, yeast has been used (a) in the past as a bactericide in the treatment of superficial infections, but this use of yeast has been practically abandoned; (b) as a source of vitamin B, for which yeast has been widely extolled; but, under usual conditions, the vitamin B requirement can be met by customary foods; (c) as a laxative, but only in case it does not cause intestinal distention; (d) in the past, as an internal remedy for furuncles and acne, but it is doubtful whether the benefit is in excess of the laxative effect; (e) as a stimulator of leukocytosis, but its efficacy in this respect is doubtful. The yeast obtained in grocery stores is essentially "brewers' yeast." It may be obtained either in semisolid form or in the form rendered solid by the addition of absorbent material. (Jour. A. M. A., September 27, 1927, p. 1080).

Book Announcements

An Introductory Course in Ophthalmic Optics. By AFRED COWAN, M. D., Assistant Professor of Ophthalmology, in the Graduate School of Medicine, University of Pennsylvania. Philadelphia. F. A. Davis Company, Publishers. 1927. Octavo of 262 pages with 121 illustrations, many in colors. Cloth. Price \$3.50.

Second Listerian Oration. By SIR CHARLES SCOTT SHERRINGTON, M. D., F. R. S., etc., Waynflete Professor of Physiology, Oxford. Delivered in the Convocation Hall, University of Toronto, June 18, 1927, under the Auspices of the Lister Memorial Club of the Canadian Medical Association. Canadian Medical Association Journal, 3640 University Street, Montreal. Quarto of 36 pages with colored picture of Lister. Paper. Price 50 cents.

Contributions to Fox Ethnology. By TRAUMA MICHELSON. Smithsonian Institution, Bureau of American Ethnology, Bulletin 85. United States Government Printing Office, Washington. 1927. Octavo of 168 pages. Cloth.

The Industrial Medicine Chest. Compiled by ABBOTT LABORATORIES, North Chicago, Illinois. 12mo of 31 pages. Paper.

Feeding Your Baby, Out of Babyhood into Childhood, The Family Food Supply, and Tuberculosis are four pamphlets published by the METROPOLITAN LIFE INSURANCE COMPANY, Home Office, New York, N. Y. Paper. Illustrated.

Ophthalmoscopy, Retinoscopy and Refraction. By W. A. FISHER, M. D., F. A. C. S., Chicago, Ill. Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College; Formerly Professor of Clinical Ophthalmology, University of Illinois, etc. Second Revised and Enlarged Edition. 8vo of 291 pages with 260 illustrations, including 48 colored plates. Philadelphia. F. A. Davis Company, Publishers. 1927. Cloth. Price \$3.75.

Principles of Sanitation. A Practical Handbook for Public Health Workers. By C. H. KIBBEY, Director of Sanitation, Tenn. Coal, Iron and Railroad Co., Birmingham, Ala., Consulting Sanitarian, Chickasaw Shipbuilding and Car Co., Mobile, and Birmingham, Ala., etc. Philadelphia. F. A. Davis Company. 1927. 8vo of 354 pages with 34 illustrations, including 5 color plates. Cloth. Price \$3.50.

American Medicine and the People's Health. An Outline with Statistical Data on the Organization of Medicine in the United States, with Special Reference to the Adjustment of Medical Service to Social and Economic Change. By HARRY H. MOORE, Public Health Economist, U. S. Public Health Service; with an Introduction by the Committee of Five of the Washington Conference on the Economic Factors Affecting the Organization of Medicine. D. Appleton & Company. New York and London. 1927. Octavo of 647 pages. Cloth.

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Editorial

Diet Prescriptions.

Control of diet as a means to combat disease takes on greater significance with each important advance of medical knowledge. Fundamental forces of the body are at work to mend the pathologic insult or injury, even up to advanced stages of disease. One's "constitution" stands ready to antagonize processes of pathology and misfunction. "Constitution"—factors of the body, whatever they are, are relied upon in all groups of medical practice. The shock and trauma of surgical operations brings the patient, for days succeeding the operation, to a low state, but gradually, under the beneficent forces of a "good constitution", the patient survives; and gradually, by a carefully administered regimen, or post-operative technique (when the operation is successful in the full sense of the word), the patient makes an "uneventful recovery". "Makes an uneventful recovery" is a phrase which deals with forces of physiology of untold and vast importance. A mere citation of a few of the factors involved in this stock phrase of surgical practice would call for an elaboration of a large amount of known physiologic phenomena, not to mention much of which we know as yet very little, if anything. The surgeon and the physician must lean heavily upon the aids of "nature" which lie unseen and unreckoned in each patient. So it is in diseases of internal medicine, "reserve strength", "nature", "the constitution", that

imponderable force in each patient is the great healing and curing force of the body.

Control of diet has much to do with the success of medical and surgical practice. The more one learns of the nutritional diseases, or deficiency diseases, the more one is impressed with the tremendous action of food upon the physiology of the body, as well as upon the pathologic processes often found in the body. Much remains to be discovered in this field. Already some of the programs which appeared to be safe are being altered and adjusted in the light of newer facts. This is as it will always be. But, comparing our knowledge of food medication of today, based upon present day knowledge, with our knowledge of twenty-five years ago, one must feel that the dietary management of disease stands upon a firmer foundation.

Diet control in nephritis has a real significance. As pointed out by a recent editor*, certain tendencies of the past are undergoing modification in the best fields of practice. The rigid prescription of too limited protein in the diet of nephritics is not always safe. Standardization of diet, in other words, cannot be safely practiced. Certain types of nephritis need a special allowance of protein in order to present an imbalance of an essential nutrient to the body. There are dangers of over-doing it. Low protein diet may be useful in certain types of nephritis, but there, as pointed out by Peters, is much to the problem in the matter of time. Low protein diet with low salt allowance may be a good prescription for a short time, but both orders may be carried too far and for too long a time. In chronic diseases, it is important to set standards for a trial. A rigorous application of this low protein and low salt diet has been responsible for serious disturbances and injury to patients with chronic nephritis. The advantage of hospitalization of these patients for a periodic study of the "state of health" of the disease from which they suffer is important. In chronic nephritis and diabetes, a periodic hospitalization affords the clinician an opportunity, under advantages of dietary management and laboratory studies, to investigate the condition of the patient, to adjust dietary errors, and to give a course of treatment for the correction of disorders incident to the disease and its management.

*J. A. M. A., Vol. 88, No. 25, page 1970.

Bladder Tumors.

W. W. Scott and R. W. McKay, of Baltimore, in a paper in the *New York State Journal of Medicine*, for September, 1927 (abstracted in *J. A. M. A.*, Oct. 29, 1927), state that the treatment of bladder tumors depends upon their proper classification. Once diagnostically classified, appropriate treatment for each is not difficult.

Benign tumors (papillomas) always yield to fulguration alone. If they re-appear, cystoscopic applications of radium are used in addition. As these tumors recur, repeated examinations over a period of several years after the primary growth was attacked are necessary.

Malignant papillomas very frequently respond to fulguration alone. But to treat thoroughly first by cystoscopic applications of radium and then to fulgurate offers much more satisfactory results. As these (malignant) tumors recur, cystoscopic examinations should be made every few months.

Papillary carcinomas, if not too extensive, yield to radiation plus fulguration. These should be subjected to combined therapy. When this method has failed, X-ray has been found beneficial in a few cases. Should these methods fail, resection of the tumor is advisable, if it is in suitable position for such a procedure; if in an unfavorable position, it should be cauterized superficially and implanted with radium or be treated with deep diathermy.

All infiltrated carcinomas in position for operation, if the condition of the patient warrant it, should be resected.

Wholesome Financial Maxims for the Physician.

Merryle Stanley Rukeyser has an interesting special article on the physician's investments in the *Journal of the American Medical Association* for October 29, 1927. This wholesome financial advice may well be perused by every physician. The following succinct maxims in the form of advice are taken verbatim for the purpose of placing them before our readers, although the article as a whole may be read with profit:

TEN MAXIMS FOR PHYSICIANS ASPIRING TO FINANCIAL INDEPENDENCE

"1. Formulate a financial program and stick to it.

"2. Do not restrict your savings to what happens to be left over after expenses have been met. Take your investment fund from your gross income first and spend what is left over.

"3. Get the maximum benefits from your purchasing power by wise spending in accordance with a budget.

"4. Count on the workings of the compound interest table rather than on the uncertain principle of the lottery for the building up of your estate.

"5. Do not let death, illness or accident interfere with the attainment of your financial objectives; insurance will take care of these hazards.

"6. Be master of your finances rather than a slave to money.

"7. Allocate part of your income for unselfish purposes.

"8. Do not confuse thrift with niggardliness. Education and culture for yourself and your family are good investments.

"9. Buy securities only from houses whose integrity you have checked through independent sources. When in doubt, deal directly through a bank. You should have an account in a savings bank before you begin to buy stocks and bonds. Remember that real bargains in securities are virtually never peddled by stock salesmen.

"10. Either avoid speculation entirely or limit your commitments to what you can afford to lose."

A. G. B.

Our New President.

In selecting Dr. John William Preston, of Roanoke, as our next President, the Medical Society of Virginia recognized not only one of our membership for his professional qualifications, which he possesses to an unusual degree, but, also rewarded a man for many years of efficient work in looking after the interest of the profession and the health of the people of the entire state of Virginia.

Dr. Preston was born at Glade Hill, Franklin County, Virginia, December 13, 1867. He was prepared for college at home, had his academic work at Milligan College, Tennessee,

and received his medical degree from the College of Physicians and Surgeons of Baltimore, Maryland—now the Medical Department of the University of Maryland.

After leaving Baltimore, he located in the Pocahontas coal fields of West Virginia, at Keystone, where his intense love for the welfare of his fellow citizens soon became evident as witnessed by his not only helping to form the county medical society, but in many other ways to improve the environment of the people of his community and restricting the practice of medicine to only those qualified.

He located in Roanoke in 1908 where again his talents were soon recognized, and once more he was burdened with the leadership in the fight against illegal practitioners, frauds of various and sundry types, and every other movement having to do with the improvement of working conditions of his fellow practitioners.

In 1913 Dr. Preston was appointed to membership on the Examining Board of the State of Virginia, and has been secretary of the same since 1917.

He has represented the Medical Society of Virginia on numerous committees, especially with marked ability and energy for the last few years on the Legislative Committee.

During the World War he served as a member of the Virginia Medical Advisory Committee.

In all of his work for the Medical Society of Virginia, Dr. Preston has been so modest and retiring that his election comes as a source of much gratification to his hundreds of friends in every part of the State, particularly so to those members of the profession residing in Southwest Virginia where he is best known and most loved.

H. H. T.



JOHN WILLIAM PRESTON, M. D.,
President, Medical Society of
Virginia.

News Notes

Our Petersburg Meeting

Will remain with us long as a pleasant memory, for the members of the Dinwiddie County Medical Society and citizens of the place did everything possible for the pleasure and comfort of the members of the Medical Society of Virginia and the ladies accompanying them. There was a registered attendance of three hundred and fifty doctors, nine visitors, and sixty-four ladies. The General

and Business sessions are reported in this issue of the MONTHLY and give a detailed account of everything that transpired. Dr. J. W.

Preston, Roanoke, was elected president, and Dr. J. Bolling Jones, Petersburg, president-elect. A most cordial invitation from Danville was accepted for our 1928 meeting and the dates set as October 16, 17 and 18, 1928.

Golf enthusiasts will be interested in knowing that the handsome cup donated several years ago by the Roanoke Academy of Medicine was won by Dr.

Thomas W. Murrell, of Richmond. Having won the cup once before—in 1924

—Dr. Murrell now becomes its permanent possessor. Dr. R. H. DuBose, of Roanoke, and Dr. Manfred Call, of Richmond, won the two prizes offered by the Din-

widdie County Medical Society for the lowest and next lowest scores made for eighteen holes.

American College of Surgeons.

At the Clinical Congress of the American College of Surgeons, held in Detroit, Mich., October 3-7, Dr. Franklin H. Martin, Chicago, was elected president-elect, and Drs. John Chalmers DaCosta, Philadelphia, and Herbert P. H. Galloway, Winnipeg, vice-presidents.

The following Virginia surgeons were admitted to fellowship in the College this year: Dr. Harry W. Bachman, Bristol;

Dr. Leroy A. Calkins, University;
 Dr. Edwin L. Kendig, Victoria;
 Dr. James G. Lyerly, Richmond;
 Dr. George M. Preston, Lynchburg;
 Dr. Arthur C. Sinton, Richmond.

The 1928 Clinical Congress of the American College of Surgeons will be held in Boston, October 8 to 12, inclusive.

Southern Medical Association.

Virginians should be especially interested in the meeting of the Southern Medical Association, this year, as one of our own members, Dr. J. Shelton Horsley, of Richmond, is the presiding officer. The meeting is in Memphis, Tenn., and the dates November 14, 15, 16 and 17, so that you may yet attend part of the sessions. Two days of meeting will be devoted to clinical sessions and two to section meetings. Several affiliated associations will hold meetings at the same time and there will be golf and trap shooting, alumni and fraternity reunions, and dinners and entertainments for the members and ladies accompanying them.

The Memphis and Shelby County Medical Society, with a membership of over 300, extends a most cordial and hearty welcome to every Southern physician to attend this meeting.

Italy's Tax on Bachelors.

The Italian Government recently introduced a tax on bachelors, the proceeds of which are to be used for the work of the National Bureau of Maternity and Infant Welfare, which has been greatly hindered by lack of funds. Premier Mussolini has recently expressed the opinion that in order to obtain sufficient funds for this purpose it may be necessary to impose a tax on childless marriages also. The National Bureau of Maternity and Infant Welfare, through its provincial committees, supervises a large number of agencies engaged in maternity and infancy work.

Married.

Dr. Lawther Jackson Whitehead and Mrs. Eleanor Enslow Kable, both of Richmond, Va., October 25.

Dr. James Gordon Boisseau, Richmond, and Miss Gladys Crowder, Covington, Va., October 29.

Dr. Savala Eustace Gunn, Hopewell, Va., and Miss Virginia Blanche Leonard, Richmond, October 8.

Dr. Edward L. Boone, of Branchville, Va.,

and Miss Nancy Bailey, of Scottsburg, Va., October 1.

Dr. Frank Waring Lewis, of Richmond, and Miss Patsy Wickline, of Clifton Forge, Va., October 6.

Dr. Joseph H. Lucinian, of the class of '24, University of Virginia, Department of Medicine, and Miss Nevart Casparian, Baltimore, Md., September 17. Dr. Lucinian is now located in the Huntington Building, Miami, Fla., and is limiting his practice to roentgenology and radiotherapy.

Dr. Raymond Robinson Simmons, Winston-Salem, N. C., and Miss Reine Louise Musgrave, of Norfolk, Va., October 25. Dr. Simmons is a native of Chesterfield County, Va., and a member of the class of '17, Medical College of Virginia.

Dr. Henry T. Garriss, Richmond, and Miss Jean Sharpless, of Hazleton, Pa., October 20. Dr. Garriss graduated from Medical College of Virginia in 1924.

Dr. Charles Lloyd Moore, formerly of Upper Tract, W. Va., but recently of Charlottesville, Va., and Miss Margaretta Watmough Wise, of Richmond, Va., November 2.

Christmas Seals.

Has your local tuberculosis association mailed some Christmas Seals to you? If so, are you wondering why you should send a check for them?

Here's why: Christmas Seals help finance the Tuberculosis Associations. These associations have already aided in cutting the tuberculosis death rate by more than half. Every seal you buy works directly for the health of your community, your friends, your family—your health.

Send your check to your local association today. Put the seals on your Christmas mail and spread their message of health and happiness.

Dr. G. Colbert Tyler

Was recently appointed health officer of Newport News, Va.

University of California Establishes Institute of Child Welfare.

The president of the University of California has announced the establishment of an institute of child welfare in the university. The Laura Spelman Rockefeller Memorial has made liberal appropriations for its maintenance for a period of six years beginning July, 1927. The California Congress of Parent-

Teacher Associations has pledged to defray during the six-year period the rental charges of such off-campus housing space as the institute will require.

American Medical Association of Berlin Reorganized.

The numbers of Americans coming to Berlin for the study of medicine and for post-graduate work in the clinics and laboratories have prompted the reorganization of the American Medical Association of Berlin, which formerly rendered such valuable service to American medical men, in order that some competent central bureau of information be available.

The American Medical Association gladly furnishes information on any subject connected with the study of medicine and allied sciences in Berlin, including cost of living, etc.

For information, address American Medical Association of Berlin, NW6, Luisenplatz 2—4 (Kaiserin Friedrich-Haus).

Red Cross "Loan Cow," Greenville, S. C.

The Greenville, S. C. chapter of the American Red Cross owns a "loan cow" which it lends to poor families throughout the county who are in need of milk. The cow was procured sometime ago when there was reported a pitiful case of an entire family destitute and suffering from pellagra. Milk was essential to their recovery, and a cow was bought by popular subscription, to be owned by the chapter and loaned to the family. Since the recovery of the pellagra victims the cow has been loaned to other needy families, and has been found to be an asset in the relief work of the Red Cross chapter which is the only organized relief agency functioning throughout Greenville County.

The Travel Study Club of American Physicians

Announces that there are a few vacancies after reservations made by their members for their Travel Study Tour from June 30 to August 28, 1928. This year the Club will visit Spain and Central Europe where many of the principal clinics will be attended. The Club arranges through a travel agency for the business management of the tour and general sight seeing and social pleasures are included with attendance upon the clinics.

Detailed information about this tour may be obtained from the secretary-treasurer, Dr.

Richard Kovacs, 223 East 68th Street, New York City.

Lay Corner Stone for Hospital.

The corner stone for the new Mary Washington Hospital building, now in the course of construction in Fredericksburg, Va., was laid on November the 4th, with appropriate exercises. The new hospital, which will cost about \$150,000, will be of brick and will be along the colonial lines of architecture.

Memory of Dr. Rawley Martin Again Honored.

An oil portrait of Dr. Rawley White Martin, recently placed in the court room of the Pittsylvania County Court House, by the Rawley Martin Chapter, United Daughters of the Confederacy, was unveiled on October 22nd, with appropriate ceremonies. The cords releasing the drapery were pulled by two grandsons of Dr. Martin—Masters Rawley W. Martin, of Florence, S. C., and Robert M. Taliaferro, Jr., of Lynchburg, Va. Hon. Groves Conner, of Wilson, N. C., presented the portrait and Judge Don P. Halsey, Lynchburg, accepted in behalf of the family, while Judge Turner Clement received the picture for Pittsylvania County. There was a large gathering of friends and relatives. Truly,

"To live in hearts we leave behind,
Is not to die."

"Belroi" Dedicated as a National Shrine.

"Belroi", the birthplace of Dr. Walter Reed in Gloucester County, Va., was dedicated as a National Shrine, on October 15th, in the presence of a notable gathering. Dr. E. C. S. Taliaferro, chairman of the Walter Reed Commission of the Medical Society of Virginia, was master of ceremonies. The addresses were interspersed with music by one of the U. S. Army bands from Fort Eustis, Va., and a fleet of airships from Langley Field paid homage to the occasion by circling over that section of Gloucester County for some time before the other exercises commenced.

An appeal is made in this issue of the MONTHLY for contributions to finish the splendid work undertaken by the Commission and it is hoped our readers may contribute liberally to this worthy cause.

Italy's Assistance to Illegitimate Children.

Assistance is provided by the Italian Government to illegitimate children who have been abandoned or who are in danger of being

abandoned, in accordance with a royal decree issued on May 8, 1927. An allowance may be paid to the mother, or the child may be put in an institution, where he is nursed by his own mother if possible, or placed out with a nurse or a foster mother. The assistance is given only if the child is under six years of age at the time of application, and continues until the child is of legal age for employment. Provision is made for periodical examinations by qualified physicians of the children to whom this decree applies and of their nurses, and for medical treatment of all children.

The funds necessary for carrying out this decree will be supplied partly from the National treasury and partly by the Provinces and municipalities. The National Bureau of Maternity and Infant Welfare will have general supervision over the administration of the law.

Community Funds Make Appeals.

There are now almost three hundred community fund cities in the country. In fact very few of the larger American cities do not now use the centralized method of raising operating expenses for their social agencies. In Virginia, Richmond, Roanoke, Portsmouth and Norfolk have had fund organizations for several years. Many other Southern cities have also adopted the fund method of financing social and charitable work.

A total of approximately \$65,000,000.00 was raised by the community funds of the country in the past year. In 1923 there were only one hundred and thirty-four community fund organizations in the entire country. These funds raised a total of about \$40,000,000.00. Probably no greater argument can be presented in favor of this method of financing social work which attests the popularity of the movement as do these figures showing the growth of the idea and the increase in gifts.

Every physician knows from experience that the world is full of people who are sick and too poor to provide nursing care for themselves; that there are thousands of people who are in suffering and distress because of inferior mentality, inadequate education and vocational training, or constitutional inability to adjust themselves to the complex problems of today. These are the folks for which the community funds are organized to care. At the same time a program of prevention is being carried on so that in the days to come the

problems will be less. Every thing is done on a basis of scientific investigation. Those who can pay should pay for services rendered. The trained social worker says that to give money or service is as dangerous as to give drugs. Both must be done by the one WHO KNOWS all the facts and knows how to treat the situation according to its real needs. In this program of much for care, more for cure, and most for prevention, the physicians of the State of Virginia are naturally deeply concerned.

Civil Service Examinations.

Full information may be obtained from the U. S. Civil Service Commission, Washington, D. C., or the Secretary of the U. S. Civil Service Board of Examiners, at the post office or custom house in any city about the following positions and examinations:

Professor of chemistry in the Hygienic Laboratory of the U. S. Public Health Service at Washington, D. C., applications to be on file in Washington, not later than November 29;

Trained nurse and trained nurse (psychiatric), applications to be on file in Washington not later than December 3;

Biochemist, applications to be on file in Washington not later than December 6; and

Associate pathologist and assistant pathologist, applications to be on file in Washington, not later than December 6.

Dr. I. W. Cunningham,

Recently of Drill, Va., located at Richlands, Va., the first of this month and will be engaged in general practice at that place.

Dr. H. H. Ware, Jr.,

An alumnus of the Medical College of Virginia, of the class of '24, recently completed a year's appointment as resident surgeon, at the New York Lying-In Hospital, New York City, and is now taking a year's appointment at Jersey City Hospital, Jersey City, N. J., as resident surgeon on obstetrics and gynecology.

Dr. J. D. Hagood,

After practicing at Scottsburg, Va., for sometime, recently purchased the home and hospital formerly operated by Dr. R. H. Fuller at Clover, and has located in that place.

Dr. Fuller is now practicing in South Boston, Va.

Medical Men of Nation Shared in Mississippi Flood Relief Through Health Work.

Sharing in importance with the work of res-

cue, feeding and sheltering of flood victims in the recent Mississippi flood was the program by which the health of these hundreds of thousands of people was protected, and the whole nation perhaps spared from an epidemic of disease resulting from flood conditions.

Doctors from nearly every part of the country, and particularly from States within comparatively close reach of the devastated country, took a major part in this work, side by side with the Red Cross, the Public Health Service, and the State health departments of the affected States. The results of this work are expected to be measured in improved health conditions in the whole territory in coming years.

This disaster relief task, while, one of the greatest operations ever undertaken by the Red Cross, was but one of a total of 111 disaster relief operations at home and abroad in the past fiscal year, which emphasize the need for an ever-ready organization. It is for this reason that the Red Cross will seek an even larger enrollment of membership this year from November 11-24, the Eleventh Annual Roll Call.

Prizes for Essay in the Cause of the Family Doctor.

As previously announced, all regular doctors in Virginia, North and South Carolina are eligible to compete for the three prizes offered for the best essays submitted on "How THE FAMILY DOCTOR CAN BEST INCREASE HIS USEFULNESS AND HIS INCOME."

A prominent North Carolina doctor provided funds for three prizes of \$250, \$150 and \$100, each, to be awarded to the successful contestants. The award is to be decided by a committee of doctors from the three states. *Southern Medicine and Surgery*, Charlotte, N. C., through which the prizes are offered, has the privilege of publishing any of the essays in the interest of the general practitioner.

Essays have to be submitted to *Southern Medicine and Surgery* before December 1, 1927.

Dr. William Russell Jones

Announces removal of his residence and offices from 9 West Grace Street, to 2701 Grove Avenue, Richmond, Va.

Dr. A. L. Stratford, Jr.,

Of Richmond, has returned to his home in this city, after spending the summer abroad.

He visited France, Germany, Italy and Spain, while away.

Dr. George A. Stover

Returned to his home in South Boston, Va., about the first of November, after taking up special work in obstetrics and gynecology in Chicago.

Dr. H. Malcus Horton,

Formerly of Ellerson, Va., more recently of New York City, is now located at Midlothian, Va., where he is engaged in general practice and surgery.

Dr. H. L. Baptist,

Ivy Depot, Va., as vice-president, succeeded to the presidency of the Albemarle County Medical Society, last Spring, when Dr. I. A. Bigger moved to Nashville, Tenn.

The Leslie Dana Gold Medal,

Awarded annually to the person who has done most for the conservation of vision in the preceding year, was presented last month to Dr. Lucien Howe, of Buffalo, New York, by Lewis H. Carris, Managing Director of the National Committee for the Prevention of Blindness. Dr. Howe was selected for this honor by the National Committee in co-operation with the Missouri Association for the Blind through whom the medal is offered annually by Leslie Dana, of St. Louis.

In making the presentation, Mr. Carris referred to Dr. Howe as the "Father of Ophthalmia Neonatorum Legislation," owing to the fact that Dr. Howe was responsible for the first law on preventing ophthalmia neonatorum, the Howe Law, passed in 1890 in New York State. Similar laws making it obligatory for midwives, doctors and nurses to report promptly all cases of ophthalmia neonatorum observed and a law requiring the use of prophylactic drops in the eyes of all new born babies have since been enacted in almost every state in the union, thereby saving thousands of persons from blindness or seriously defective vision.

Ecuador's New Law on Industrial Hygiene.

A law recently passed in Ecuador provides that proprietors of all kinds of factories and workshops shall furnish safe and sanitary working conditions for their workers. Regulations are prescribed to insure general cleanliness and proper ventilation and to prevent accidents.

The law also forbids the employment of women and children under the age of eighteen

years in work where white lead or other poisonous coloring substances are used, in the manufacture and handling of explosives or inflammable materials, and in heavy manual labor.

Women workers are to be given four weeks' leave before childbirth and six weeks after childbirth, during which period their employers shall pay fifty per cent of their salary. Employers are not permitted to dismiss pregnant women without legal reason.

Dr. Walsh Resigns as Secretary of the American Hospital Association.

Announcement has been made of the resignation of Dr. William H. Walsh, as executive secretary of the American Hospital Association, this to take effect January 1, 1928. He has been executive secretary of the Association since February, 1925, when he succeeded Dr. A. R. Warner who died in 1924. Dr. Walsh is returning to his private practice of hospital consultation, with offices in New York and Chicago.

At the time of the appointment of Dr. Walsh as executive secretary in 1925, the American Hospital Association was conducting its business in two rooms in rented quarters, with a staff of six people. At the present time, the Association owns its own building, has a staff of fifteen assistants, has created a reserve fund and has just completed the most successful convention in the history of the Association.

Committee Organized for Memorial to Doctor Salmon.

A committee has been formed to prepare a memorial to Dr. Thomas W. Salmon, professor of Psychiatry at Columbia University, and the first Medical Director of The National Committee for Mental Hygiene, who, in August was drowned while sailing on Long Island Sound.

The Chairman and Treasurer of the Committee are Dr. Frankwood E. Williams, Medical Director of The National Committee for Mental Hygiene, and Dr. Samuel W. Hamilton, Assistant Medical Director, Bloomingdale Hospital, White Plains. The function of the Committee is to consider plans proposed for a memorial and to receive funds for this purpose.

Legal Age of Marriage Raised in India.

During the last three weeks, according to the *Indian News Service*, three more States of India have promulgated laws raising the age

of legal marriage to 12 and of real marriage to 14 or 16. In Kota the age at which boys may marry has been raised to 16, that of girls being 12, while girls under 18 may not marry men over 35, nor girls under 20 men over 45. Arrangements have been made for prosecution to follow such marriages, even though they have been performed outside the State.

The American Public Health Association,

At its meeting in Cincinnati, Ohio, last month, elected Dr. Herman N. Bundesen, Commissioner of Health of Chicago, president, and re-elected Mr. Homer N. Calver secretary.

New Dental Clinic, London.

A dental clinic equipped with fifty chairs in its main infirmary and seven chairs in its orthodontia department is soon to be established in London through a gift of \$1,500,000 from Mr. George Eastman of the Eastman Kodak Co. The clinic will have also twenty-five beds for tonsil, adenoid, and cleft-palate operations, for which at present there is a very inadequate provision in London.

The Ex-Interns' Association of St. Elizabeth's Hospital

Held its fourth annual meeting at St. Elizabeth's Hospital, Richmond, Va., October 4th, under the presidency of Dr. E. L. Caudill, of Narrows, Va. The morning sessions were given over to clinics by Dr. J. Shelton Horsley, Dr. J. S. Horsley, Jr., Dr. W. H. Higgins, Dr. A. I. Dodson, and Dr. O. O. Ashworth. After this, the members were guests of Dr. Horsley for luncheon at Commonwealth Club. The afternoon session opened with the president's address, which was followed with papers by Dr. A. A. Houser, of Richmond, Dr. H. J. Warthen, Jr., of Baltimore, Md., Dr. R. W. Upchurch, of Durham, N. C., Dr. W. C. Caudill, Pearisburg, Va., and Dr. R. G. Waterhouse, of Kinston, N. C.

At the business session, Dr. W. C. Caudill, Pearisburg, Va., was elected president, Dr. R. G. Waterhouse, Kinston, N. C., vice-president, and Dr. John S. Horsley, Jr., Richmond, was re-elected secretary-treasurer. Upon adjournment of the meeting, the association was delightfully entertained at supper at "Grey-stone," the home of Dr. and Mrs. J. Shelton Horsley.

Dr. W. W. Wilkinson,

La Crosse, Va., has just been appointed by

the State Health Commissioner as a member of the Mecklenburg County Board of Health.

Decline in Suicides Among Adolescents.

Figures compiled last winter from the records of the industrial policyholders of the Metropolitan Life Insurance Company show that, contrary to popular belief, suicides among adolescents are actually on the decline. Statistics for the period 1909-1924 from the ten original registration States show that the death rate from suicide for persons of all ages has been steadily decreasing. The rate was found to vary for the different age groups, the most rapid rate of decrease being for the age group 10 to 19.

Dr. Claude Moore,

Roanoke, Va., in a recent letter to the Society's offices, extending good wishes for our Petersburg meeting, stated that he had visited a number of European clinics, and that Americans seem very welcome in Berlin and Vienna. He said that, although there are generally about 50 to 100 American physicians in attendance at the Vienna clinic, he was the only Virginian there at that time,—the first of October. He expects to return home shortly after the middle of November.

For Sale—

Physician's offices and residence combined, Newport News, Virginia. Price attractive. Terms easy. Has always been physician's home and is well established. Four modern offices partly equipped in up-to-date manner. Large practice not yet taken up. Newport News is located on Hampton Roads and the climate is ideal. Address: Mrs. Edwin M. Newsom, 2505 Chestnut Avenue, Newport News, Va. (*Adv.*)

Obituary

Dr. Mortimer F. Hansbrough,

Of Front Royal, Va., died in that place, October 5th, following a stroke of paralysis. Dr. Hansbrough was seventy-eight years of age and graduated in medicine from the College of Physicians and Surgeons, Baltimore, in 1874. He was for many years one of the leading physicians in his section. He is survived by two daughters and one son, Dr. Lyle F. Hansbrough, of Front Royal.

Dr. John Wilson Davis,

An alumnus of the Medical College of Virginia of the class of 1856, died at his home in Spotsylvania County, Virginia, October 22nd, at the age of ninety-one. He was exceedingly

active for his years and attended graduating exercises at his alma mater last session. His wife and a large family connection survive him.

Dr. Albert Macon Smith,

A native of Richmond, Va., but an interne at the University of Virginia Hospital, died October 26, following a motorcycle accident that afternoon. Dr. Smith, who was twenty-six years of age, was an honor graduate of the University of Richmond and later at the University of Virginia, following which he studied medicine at the University. Upon his graduation in medicine in 1925, he was appointed an instructor in anatomy in that institution.

Dr. Joseph Howell Way,

Waynesville, N. C., former secretary and later president of the Tri-State Medical Association of the Carolinas and Virginia, died of heart disease, in Asheville, N. C., September 22. He was sixty-one years of age and graduated from the Vanderbilt University School of Medicine, Nashville, Tenn., in 1886. He was an ex-president of the Medical Society of the State of North Carolina and since 1911, president of the North Carolina State Board of Health.

Resolutions on Death of Dr. C. W. Massie.

WHEREAS, God, in His infinite wisdom, terminated a most useful life, by calling our esteemed friend and colleague, Dr. Charles William Massie, on September 26, 1927; we, a committee appointed by the Church Hill Medical Society, desire to express our most sincere sympathy to his family, and our deep sorrow at his loss.

Dr. Massie was born in Amherst County, Virginia, seventy-one years ago. He graduated in medicine at the University of the City of New York, in 1880.

He first practiced his profession in Amherst County, afterwards removing to Rockbridge County, and later came to Richmond. He established an office on Church Hill and for thirty-two years was one of the East End's most prominent physicians.

He enjoyed a very large practice and was especially fond of obstetrics. He delivered, in all probability, more babies than any other doctor in this section.

Dr. Massie was an honorary member of our Society and a former member of the Medical Society of Virginia, and the Richmond Academy of Medicine.

BE IT RESOLVED, THEREFORE, That the Church Hill Medical Society wishes to express a deep sense of loss in the death of Dr. C. W. Massie, and extends its sincere and heartfelt sympathy to his widow and his surviving family.

That a copy of these resolutions be spread upon the minutes of this organization, and that a copy be sent to his family, and that a copy be published in the VIRGINIA MEDICAL MONTHLY.

G. C. WOODSON,
R. D. GARCIN,
J. R. BLAIR,

Committee.

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THE PHYSICIAN'S PART IN POPULARIZING BREAST FEEDING AND REDUCING INFANT MORTALITY.*

By W. A. PLECKER, M. D., Richmond, Va.

Director of Vital Statistics, Virginia Board of Health.

Success in applying the progress of modern medical knowledge is perhaps in no way more clearly illustrated than in the reduction of the infant death rate.

If we accept the New Zealand rate, now under 40 per 1,000 births, as the goal which Virginia may reasonably be expected to reach, it will be necessary to more than halve our 1926 rate of 83. Under present conditions this must be done, if at all, chiefly by the family physician, whose influence reaches to the most remote corners of the State, and whose opinion and word are final in all questions of sanitation and personal hygiene.

The printed teaching of the Board of Health though simple, clear and attractive, does not go where the doctor goes, and if it did, would be given but little consideration when the doctor speaks.

To the present, the efforts of the Board of Health are necessarily directed chiefly to the fundamental work of sanitation and the prevention of infectious diseases. Except in the schools, but little can be done to teach personal hygiene, and that little falls far short of reaching anew each year, sixty thousand homes where there are babies, many of whose health or lives depend upon what the mothers know of their wants, and of their willingness if need be to sacrifice their own comfort and pleasure that the babies may have the best.

Who above all others can induce them to do this? The physician, and the physician alone!

It is necessary, therefore, that physicians realize the importance of this subject, and that at least a considerable per cent of them become enthusiasts in putting the idea across. To do this it is essential that they become familiar with the work which has been done during recent years in this country by Sedgwick, Richardson, Moore and others, and by

King of New Zealand, who developed public opinion and started a work which has extended not only to other parts of the British Empire, but around the world.

Demonstrations made in Minneapolis, by Richardson in Nassau County, Long Island, and Wakeman in Hornell, New York, show the possibility of securing a near approach to 100 per cent of mothers who can be induced to nurse their infants and who can be enabled, in part at least, to do it.

Sir Frederick Truby King, of New Zealand, in 1907, became convinced that "practically 100 per cent of mothers could breast feed their babies, and that it was often due to ignorance of this fact that babies were unnecessarily weaned."¹

"Dr. King felt that this was the starting point for all Infant Welfare Work," and upon that foundation organized a work which has

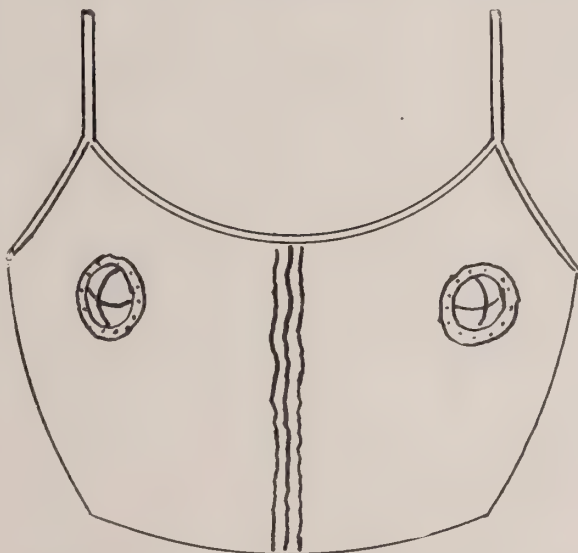


Fig. 1.—Nipple aerators sewed into the brassiere prevent and cure inflammatory nipple troubles by evaginating the nipple and permitting application of the open-air method of treatment. (Manufactured by Becton, Dickinson and Company)

made that country the leader in reducing the infant death rate.

The writer, who from the beginning to the end of his twenty-five years as a general practitioner was an enthusiastic advocate of breast

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia in Petersburg, October 18-20, 1927.

feeding, found it possible during that period to attain success in almost 100 per cent of his cases. That was, too, before the development of the new method of expressing the last drops of milk after nursing.

The physician must first be convinced himself that *breast feeding* is a life-saving measure; he must then thoroughly familiarize himself with the methods of overcoming the many difficulties that arise. He must be unyielding in his demand that the mother co-operate with him, and, finally, he must be willing to make the personal sacrifice of time and effort to attain success.

The situation is so clearly expressed by Bolt, of Baltimore, in his monograph, "The Mortalities of Infancy" (Abt's Pediatrics, Volume II), that I can do no better than quote as follows:

"Infant Feeding.—There is no question that the character of feeding during the first year of life is the main factor in the health destiny of the baby. Although prenatal and natal conditions may largely account for neonatal deaths, we must look to difficulties in feeding as the underlying cause of the disorders which result in so many deaths during the later months. The early establishment of breast feeding is of paramount importance. Upon this point there should be no controversy between the obstetrician and pediatricist. Valuable time is sometimes lost in the early days of life because the obstetrician in his solicitude for the mother overlooks the importance of early establishment of proper nursing habits. In every country there is unanimity of opinion as to the supreme value of breast feeding as a preventive of infant mortality. Our whole clinical experience, strongly supported by laboratory research, affirms that mother's milk is the safest and best food for the infant and by all odds the most economical. There is no real substitute for mother's milk."

Difficulties.—The first is to overcome the mother's *unwillingness* to make the sacrifice of personal comfort and pleasure which she imagines that she does when she ties herself down to the task of giving her baby a true mother's care.

This is the point at which the physician displays the degree of his own convictions and zeal, and demonstrates whether or not he possesses the personality and perseverance necessary to win the mother, and then to follow up

this first success by patience and readiness to meet and overcome difficulties as they arise. The question of mode of feeding should be definitely settled when engaged as attendant, and the prenatal care be directed to that end.

The second problem is to overcome any *physical defects of the nipples* that may exist, and which are in many cases the cause for abandoning breast feeding. The condition of the nipples of mothers (especially of primiparae) who did not breast feed previous children should be carefully inquired into when engaged. If flat or sunken they should be carefully drawn out twice a day or oftener and trained into shape, beginning two weeks or a month in advance. A simple expedient which I have frequently used with success, both before and after the birth of the child, is an ordinary bottle with neck of suitable size, from which hot water has just been poured. The flat or sunken nipple will be drawn into the neck of the hot bottle pressed over it. Care must be used not to excite labor pains.

Sore or Cracked Nipples constitutes the third problem. Our old professor of obstetrics did not, in 1885, teach us the cause and prevention of puerperal fever, but he did impress upon us the fact that abscess of the breast can be avoided by preventing cracked and sore nipples, or by quickly healing them in the beginning. Obedience to this injunction enabled the writer to pass through his professional career without having a patient experience the horror of mastitis, except one who developed a small abscess a month after she was dismissed, and who failed to heed the parting injunction always given at the last visit, "Be sure to let me know if your nipples begin to become sore or cracked."

I wish here to call your attention to the aerator, a recent wire device by Dr. C. Ulysses Moore, of Portland, Oregon, which, sewed into the breast binder, he says, "Prevents and cures inflammatory nipple troubles by evaginating the nipple and permitting application of the open-air method of treatment." Powers and Anderson, of Richmond, have, by request, placed these in stock. Druggists will doubtless procure them when you desire it.

The fourth and most frequent cause for premature weaning is an *insufficient milk supply*, or milk of supposed poor quality.

Women may occasionally be met whose milk does not suit or nourish their infants. The

writer cannot recall one such in his own experience with about 1,000 patients, though in many cases complementary feeding was necessary. An insufficient milk supply is not a reason for depriving the infant of all that there is. With proper diet and hygienic care of the mother and with practice of the new method of expressing the last drops of milk, at least five times a day, the quantity may be greatly increased.

The method of manual expression is well described by Dr. C. U. Moore as follows:

"The correct position and motion of the fingers vary with the type of breast. With



Fig. 2.—Deep and "together" position for expressing milk and the easy scissors-like motion (thumb and first finger practically parallel) most useful with the pendent type of breast.

the pendent breast the finger and thumb come together with a scissors-like motion. In such cases, manual expression is simplified, as almost any method works. Virginal breasts and those with inverted nipples present a much more difficult problem. In these, the finger and thumb are inserted deeply into the areolar well and brought together three-fourths inch behind the nipple. This might be described as a pincer's motion or a bull-dog grip. Mastery of manual expression technic is indicated by ability to force large, strong streams of milk a distance of 3 feet or more."

I am indebted to Dr. Moore and to *The Journal of the American Medical Association* for permission to use the cuts illustrating his paper.²

A well selected diet for the mothers is essential to improve the quantity as well as the quality of her milk.

Milk supplies the calcium needed for both

mother and child, in addition to proteins, fats, and sugar. One quart of milk contains also much of the water which is needed in the formation of the mother's milk. Leafy vegetables, especially such as slaw, lettuce, and celery, with tomatoes, all of which are eaten raw, meat, and whole grain bread will round out the menu. All of these articles are too frequently missing from the diet of the nursing mother. The same diet should be used during pregnancy and will do much to prepare the mother for the natural feeding of her baby from the beginning.

She should secure not less than nine hours of sleep at night, and arrange for a nap of half an hour in the afternoon.

The practice of the methods thus briefly outlined will save many babies from the bottle, and even, with the best of care, from the grave.

The physician should master the method of completely emptying the breast five times a day, by manual expression, and should devote the time necessary to teach it to mother and nurse.

The obstetrician should not consider his task complete if he has failed to start the mother well on the road to the natural feeding of her baby, and warned her to report promptly any irregularities that may arise.

Breast feeding will accomplish much, and save the lives of many infants, but it will not insure against careless and ignorant mothers. Every physician knows that it is the custom of such mothers to take their infants to the table and to allow them to nibble at just what the rest of the family is eating. We believe that if we could secure the facts in all cases, many deaths from diarrhoea would properly be traced to unsuitable food, in addition to the breast. While inducing mothers to nurse their babies, physicians may well warn also against feeding them other food unsuited to their age and powers of digestion.

The Bureau of Vital Statistics, desiring to make a statistical study of the prevalence of artificial feeding, and to learn just how much physicians are responsible by actual advice or by indifference, recently sent out questionnaires to the visiting nurses of the State, and to the mothers of the infants dying during the first part of 1926. The replies have been compiled and, while admitting the result as a rather crude piece of work owing to the varying character of the information furnished, we find a rather close agreement of the figures as secured

from the reports of the nurses and of the mothers.

Nurses reported upon 638 infants as to time of weaning and whether or not it was done upon the advice of physicians. It was found that 52 per cent of all infants weaned during the first six months was by advice of physicians. Of the white there were 56 per cent, and of the colored 21 per cent.

The mothers' figures of infants that died were 51 per cent weaned by advice of physicians, of the whites 58 per cent and of the colored 36 per cent.

Of all infants 6 months and under reported upon by nurses, 52 per cent were breast fed. In Chicago, in 1922, only 20 per cent of one-year-old infants were breast fed. In 1927, after intensive educational work, 90 per cent are breast fed, while the infant death rate was reduced 34 per cent, being in 1926, 67 per 1,000 births.⁵

The Virginia infant death rate for 1926 was 83 per 1,000 births, while 52 per cent of the Virginia infants are breast fed, compared with Chicago's present 90 per cent.



Fig. 3.--Pincers-like motion with tips of thumb and finger coming together deep in the breast behind the nipple; useful with virginal types of breasts and in those with inverted nipples.

It is not presumed that the great reduction in the Chicago death rate during five years is due alone to the increase in breast feeding, though it is doubtless true that that is the chief factor.

When we increase our breast feeding rate from 52 per cent to 90 per cent we will at the same time, and by the same effort, improve all sanitary conditions that may have a part in securing the result. This sanitary improvement will also reduce the adult death rate as well.

Your attention will now be directed to the reasons assigned by the nurses and mothers for weaning. These are similar, but as the nurses' reports are better, theirs will be used. As the table is of unusual interest and is worthy of careful study, it will be given in full as tabulated.

NURSE QUESTIONNAIRE

	Advice of Doctor		Without Advice		Total
	White	Black	White	Black	
Insufficient milk -----	37	13	34	2	86
Mother's milk did not agree -----	13	4	4	1	22
Not gaining on breast..	4	3	4	--	11
Baby would not nurse..	3	1	2	3	9
No milk -----	1	2	--	--	3
Milk weak -----	7	--	8	--	15
Reason unknown -----	8	--	4	--	12
	73	23	56	6	158

Sixty per cent of total faults with milk were weaned by advice of the physician.

Fifty-seven per cent of white faults with milk were weaned by advice of the physician.

Eighty per cent of black faults with milk were weaned by advice of the physician.

OTHER REASONS FOR WEANING.

	Advice of Doctor		Without Advice		Total
	White	Black	White	Black	
Toxic condition mother..	--	3	--	--	3
Pregnancy -----	5	2	8	2	17
Mother not interested..	--	--	1	1	2
Mother had diphtheria..	--	1	--	--	1
Run-down condition mother -----	--	1	--	--	1
Mother sick -----	7	1	2	--	10
Mother had kidney trouble -----	1	--	1	--	2
Mother had typhoid....	1	--	--	--	1
Mother had whooping cough -----	1	--	--	1	2
Mother had measles....	1	--	--	--	1
Mother compelled to work -----	--	1	3	--	4
Baby had cleft palate..	1	--	--	--	1
Baby had convulsions..	1	--	--	--	1
Abscess of breast.....	2	--	--	--	2
Abnormal breast -----	2	--	--	--	2
	22	9	15	4	50

ACCEPTABLE REASONS FOR WEANING.

	Advice of Doctor		Without Advice		Total
	White	Black	White	Black	
Mother died -----	2	--	3	--	5
Baby in hospital.....	--	1	--	--	1
Taken from mother.....	--	--	--	5	5
Mother had T. B.....	5	--	--	--	5
	7	1	3	5	16

SUMMARY

	White	Black	White	Black	Total
Faults with milk supply	73	23	56	6	158
Sickness of mother or child (not T. B.)-----	22	9	15	4	50
Unavoidable other than T. B. -----	2	1	3	5	11
T. B. of mother.....	5	--	--	--	5
	102	33	74	15	224

Sixty per cent of total (reasons given) were weaned by advice of the physician.

Fifty-eight per cent of white (reasons given) were weaned by advice of the physician.

Sixty-eight per cent of black (reasons given) were weaned by advice of the physician.

The writer is in accord with those who maintain that open tuberculosis of the lungs is the only absolute reason for taking the infant from the mother's breast. Of the 224 cases with causes given, only five were for tuberculosis. In five cases the mother died, and in five cases the child was for some reason taken from the mother, while one child was taken to the hospital, making a total of sixteen in which weaning seemed justifiable, leaving 208, or 93 per cent of the total in which the infants, according to the accepted standard, might have been

of importance in saving him from an early grave.

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State Office Building.

TYPHUS FEVER.

Report of a Case in a Child.*

By ST. GEO. T. GRINNAN, M. D.,
and
MANFRED CALL, M. D.,
Richmond, Va.

It is so long since typhus fever has been reported in Virginia, and this disease is so uncommon here, that physicians are not apt to consider typhus fever in making a diagnosis. There are many physicians in Virginia who have never seen a case of typhus fever, and if they have seen them, it was not in Virginia.

A brief description of typhus fever is given so that the case to be reported may be compared with a normal case.

Typhus fever has followed war, famine and the dark pages of the world's history, not in hot countries, but in the temperate zone. The Balkan States, Ireland and Great Britain furnish typhus literature. Typhus fever has been more prevalent in the cold months in Europe. In North America typhus is found in the Southern States, especially New Mexico, Indian Reservations and in Mexico. Rio Grande fever has been shown to be typhus fever. Brill's disease in the Port of New York is a mild form of typhus fever.

The usual cause of typhus is the infected body louse. It has been said that "typhus fever prevails in inverse ratio to the amount of soap use."

The incubation period of typhus fever is five to eighteen days. The average incubation period is eight to twelve days. The disease begins with a chill and headache. The temperature quickly rises usually to 104 degrees F., or higher, and remains throughout the active course of the disease which is usually thirteen days. In a child the temperature may last eleven or twelve days. The temperature falls by crisis or a slow crisis. The disease affects

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.



Fig. 4.—Structure of the cow's udder (left) compared with the human breast (right), showing the reasons for deep and "together" motions used in milk expression, in contradistinction to the stripping motion used in the dairy.

breast fed in whole or in part. Complementary feeding after each inadequate breast feeding until the milk supply is sufficient, must, of course, be practiced to the extent of producing a normal rate of gain of the infant's weight.

At times the condition of the mother may require the temporary withdrawal of the child. In such cases the flow should be kept up by manual expression, and the child returned as soon as possible.

Such infectious diseases of the mother as scarlet fever do not prevent nursing. The danger from infection is less than the danger from artificial feeding, and may be greatly lessened by preventing direct contact of the child with the mother. It is possible, however, to express the milk and feed it from a bottle.

In many instances when the physician is said to have advised weaning, especially when the babies died, he may have simply consented to the suggestion of the mother. If he did, he displayed a lack of interest, indicating either that he has not comprehended the importance of such a step, or that he was unwilling to enter upon a struggle to secure for the baby his natural birth-right, and the one thing of great-

the nervous system, the muscular system (pains), and the vascular system.

In the severe cases, coma vigil, delirium and muttering are common.

The heart rate is 110 to 120.

The kidneys are little affected.

The lungs may show bronchitis.

The white blood count averages 10,000 to 14,000.

The abdomen is not distended.

There are no relapses; after the third to fifth day there appears a maculo-petechial eruption, noted first in the axillary folds and on the back. This eruption quickly extends over the arms and legs, then over the entire body. The rash at first has much the appearance of measles for which it has often been mistaken; it is not elevated at first. Later, the rash is papular, $\frac{1}{2}$ millimeter high, ovoid in shape, dirty pink color, diameter 3 to 4 millimeters, fades on pressure but does not disappear. New crops occur until the ninth day. After the ninth day, all spots become more dirty pink, fade on pressure and show some hemorrhage in the center. In mild cases there are pin point hemorrhages.

The eruption which changes its appearance three times in the course of the disease lasts throughout the disease and does not fade until after the crisis on thirteenth day. The intensity of the eruption is directly proportional to the severity of the disease. After the crisis the rash disappears within three to five days and the bad signs of toxemia quickly go.

The spleen is enlarged in 60 per cent of the cases.

Two per cent of the cases are hemorrhagic.

The blood is infectious.

The blood of guinea pigs infected by typhus fever, shows minute bacillary bodies.

Brill's typhus showed gram positive obligate anaerobic bodies which required the presence of glucose in an unusually rich acetic fluid in the culture medium. (Brill in Nelson's Loose Leaf Medicine, Vol. 1, p. 193).

In 1916 da Roch Lima reported the observation of Prowazeki and himself that typhus infected lice regularly show innumerable minute bacillary bodies within the cells lining the stomach. The *Richettsia-Prowazeki* is probably the cause of typhus fever. Whether it is bacterial or protozoan in nature has not yet been determined.

Seventy per cent of the endemic cases occur

in June, July, August and September. The fact that in endemic cases other members of the family are not infected suggests other means of infection than the body louse.

The rat is suggested as an indirect cause, especially in the Southern States of the United States. In Savannah, many of the cases of typhus have occurred in grain dealers where contact with rats is common.

In London, the mortality is 18.9 per cent, in Berlin, 23 per cent, and Mount Sinai hospital in New York, 20 per cent.

Deaths in hospitals are 11 to 60 per cent.

In epidemics, nurses and doctors are frequently infected.

In endemic cases, infection of attendants is not common.

Typhus fever is diagnosed by the Weil-Felix reaction.

In 1916 Weil and Felix isolated strains of proteus bacilli from the urine and stools of typhus patients which were agglutinated by serum of the patient.

One strain of proteus X 19 is very sensitive in dilution of 1:10,000 for agglutination test. The Germans and Austrians employed this method of diagnosis in the World War. A dilution below 1:100 is non-specific, being observed in the course of other febrile courses.

An agglutination test of 1:100 should be accepted. (Nelson's Loose Leaf Medicine).

CASE: Female, age 7. Home in Connecticut, but had been in Virginia one month when taken sick, July 12, 1927. The incubation limit of eighteen days proves that the infection occurred in Virginia. The temperature quickly rose to 104.8 degrees F. On the fifth day a maculopapular eruption appeared in the axillary region on both arms, the legs and the back. The eruption had the appearance of measles. The child, however, had had measles. Later the eruption became elevated and did not disappear on pressure. Two or three days later the eruption changed in appearance and resembled fly bites. In the centre of the eruption there were pin point hemorrhagic spots. Gradually these spots became purplish purple. On the seventh day of the disease the child became delirious and appeared seriously ill.

July 19th: A tourniquet was applied to the arm for venous puncture (culture). Almost immediately there appeared multitudinous purpuric spots generalized from tourniquet to the finger tips.

Quite profuse nose bleeding occurred the same day.

Colonic irrigation was accompanied by half a pint of coffee colored fluid in clots, partly hemorrhagic, oozing from the intestine, partly swallowed blood from the nose bleeding.

The white cell count was 4,300; reds, 3,270,000; hemoglobin 62; neutrophils 60; endothelial leucocytes 3. There was marked fragmentation of the lymphocytes, platelets 40,000.

July 22nd: Direct blood transfusion was done, 200 c.c. being given; the child now had a purpuric eruption over the entire body.

July 23rd: White count 14,000. Platelets 52,000. Realizing the danger of such a low platelet count, quartz light radiation was given over the body, both back and front as a means of raising the platelet count. Radiation was given daily until blistering occurred. The platelets were raised 20 per cent by this means.

The spleen was palpable at the costal margin. Reflexes were normal. Spinal fluid was negative (Pandy's test). Coma vigil, muttering and delirium was present. Temperature remained high.

Many tests and cultures for typhoid and paratyphoid A and B were negative. The stools were negative for parasites. The X-ray of chest was negative. Urine negative excepting an occasional trace of albumin.

The abdomen was much distended and rigid throughout. Muscular pains were intense and luminal was used to give rest.

There was slight enlargement of the lymph nodes in the axilla and groin.

The heart and liver were normal.

Diaphragm negative.

Continued blood tests all of which were negative were made for various diseases, as follows: Malaria, Malta Fever, Cambiensis, Tularemia, Encephalitis, Typhoid and Paratyphoid.

July 29th: Owing to low platelet count (54,000), blood transfusion was performed, 300 c.c. being given. The platelets were raised by transfusion to a factor of greater safety, 65,000. (The normal is 275,000).

On *August 1st*, a positive agglutination test for typhus fever was made with the proteus X 19 in dilution of 1:600.

On the twenty-fourth day of the disease a slow crisis began. The spots or rash began to disappear and turn a dirty brown, then a dirty

yellow, and in three days were gone. The delirium disappeared with the rash when the temperature was normal. She made an uneventful recovery.

The writer believes that the two blood transfusions were of great value in this case.

CHEMISTRY AND MEDICINE.*

By WORTLEY F. RUDD, M. A., Richmond, Va.

All of us are, theoretically at least, intensely interested in practical applications of fundamental principles. The generation to which you and I belong has been characterized by the ability to make such applications to a degree undreamed of a generation ago. Our success in this field has become so phenomenal, and the benefits derived therefrom so widespread, to rich and poor alike, that we accept the situation with neither question nor comment.

In an address delivered before the Franklin Institute, of Philadelphia, and later published and given very wide distribution as a classic in epitomizing the modern world's relation to and dependence upon scientific work, Dr. Arthur D. Little, in speaking of scientists, whom he was pleased to call the Fifth Estate, says the "Fifth Estate is composed of those having the simplicity to wonder, the ability to question, the power to generalize and the capacity to apply. It is in short the company of thinkers, workers, expounders and practitioners upon which the world is absolutely dependent for the preservation and advancement of that organized knowledge which we call Science." Almost at the same time "What Price Progress" was published and commanded international attention. It aroused business men to the importance of fundamental research in industry as nothing else had ever done.

Almost within a stone's throw of where this meeting is being held today, the Allied Chemical and Dye Corporation has already begun work on a plant to cost more than \$100,000,000. We learn that this vast enterprise will utilize chiefly just one scientific principle on a practical basis. The figures and the conception challenge the imagination. At Hopewell and Roanoke and Saltville and Richmond, and many other places in this traditionally conservative State of ours, many millions of

*Read by title at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

money and thousands of workers are employed in the conversion of raw material into products of the most refined type under the guidance of highly trained chemists.

As important and interesting as these things are, I am not warranted in coming before the Medical Society of Virginia to talk about them unless these same fundamental chemical principles which are now the basis of the industries of the world have a direct and moulding influence upon you and your immediate tasks. It is unnecessary for me to have to prove this to you. Evidence of the interdependence of our professions is a daily experience. A single instance will show how close we are.

Tomorrow night in Richmond before a joint meeting of the Virginia Section of the American Chemical Society and The Woman's Club, Dr. Charles H. Herty, one of the most efficient and distinguished chemists in America, will talk on "Good Health, The Ultimate Aim of Chemistry." Recognition of the principle that good health is our chief aim, and that the public is being told about how we are working at the task, has given me the temerity to discuss it briefly with you. A sufficient excuse for this paper is, then, the fact that in much of your diagnosis your methods are those of the chemist, and in treatment the products of his researches are your chief dependence. Probably among the majority of physicians this point of view is now generally accepted. Even at the beginning of the present century, however, such was not the case. Well trained men in your profession were hopelessly divided on the value of chemistry to the practice of medicine. About that time, when Dr. Harvey W. Wiley was in the prime of his usefulness, he addressed the student bodies and faculties of the Medical College of Virginia and the University College of Medicine in a joint meeting. Among the many fine things he said was one statement which made a profound impression upon me, as it was a bold remark for those days. "Young men," he said, "many of you will live to see the day when bacteriology and pathology will be regarded as simply parts of the whole field of chemistry, so lay a broad foundation in chemistry that you may understand these other subjects which play such an important part in medicine." Now another picture of those same years—another distinguished physician who gave a considerable

part of his time to the teaching of chemistry to medical students was accustomed to say something like this in his opening lecture each year. "Young gentlemen, the course of lectures which I am beginning today covers 96 hours. I could easily give you all of the chemistry you will ever need in the practice of medicine in a 20-hour course, but the curriculum calls for 96 hours. It, therefore, becomes necessary for us to cover much more ground than I think you will actually need in your life's work." At the time these widely different points of view were expressed, a few more or less exact tests on urine and gastric contents were the chemists' major contribution to diagnosis. Folin* was already beginning to develop methods for making blood chemical tests with the idea of applying them to the practical work of the clinician. Workers in the same field, Denis, Benedict, Lewis, Myers, Fine, and many others, contributed to the rapid development of reliable methods of clinical laboratory technic. Parenthetically, it is interesting to note that the great contributions to modern methods of blood examinations on a clinical basis have been made by American workers.

Progress in the past twenty years has been truly phenomenal. Highly developed research and refinements in chemical technic have given us an accurate knowledge of the human body in its chemical relations in both health and disease hardly dreamed of at the beginning of the present century. As a result of these refinements in technique and the application of some of the most fundamental of newer chemical philosophy to medical problems, physicians are now in possession of a vast amount of knowledge of the human body. You know that the blood stream, by a wonderful chemical mechanism of buffer salts, maintains a hydrogen ion concentration of 7.3 to 7.5, a very limited range in health; and that a change to the acid side of neutrality or a p H of 6.75 or on the alkaline to 7.7 or 7.8 is almost in every instance indicative of impending death; that an increase in the sugar content of the blood from a normal of about .1 of one per cent to .15 or .2 of one per cent is distinctly pathological; that in acute intestinal obstruction the urea nitrogen changes from a normal of some 12 or 15 milligrams per 100 c.c. of blood to as much as 50 or 100 or even more; that in nephritis where the creatinine content

*Chemistry of the Blood in Clinical Medicine.

goes above 5 milligrams per 100 c.c., the normal being about 1 to 2, more than 90 per cent of cases will die in a comparatively short time; that in tetany we sometimes find a decrease in calcium content of the blood from an average of from 9 to 11 milligrams per 100 c.c. to as little as 3.5 milligrams per 100 c.c., and that persistent and constant administration of calcium frequently relieves this disturbing condition. Knowledge of these and many similar chemical facts about the changes which the body fluids undergo has completely upset many traditional beliefs concerning the cause of disease and opened up new methods for cure.

In so brief a paper it will be impossible to cite all the ways in which you depend upon the chemists' work in your diagnosis. You know what they are. You know they are increasing at a fairly rapid rate, and he is a bold man indeed who will dare put limitations upon how far the chemist will go in fostering better methods of diagnosis and cure in the future.

In a recent address on "Chemistry in Relation to Biology and Medicine," Dr. John J. Abel says, "mastery of your science (chemistry) became necessary for the solution of physiological and pharmacological problems that could not be undertaken or even formulated if their chemical aspects were to be ignored." He further states, "no longer are the devotees of the biological and medical sciences foster-parents or foster-brothers of yours as in the old days! It is we (the physicians) who are now dependent in a large part of our work upon you and your fellow scientists, the physicists. The reason for this change in relationship is not far to seek. It lies, primarily in the fact that your science has developed many more devices and accurate methods of measurement."

It is mere truism to say that no sort of practice becomes truly scientific until it develops highly accurate methods of measurement. While the chemist's aid in diagnosis is of comparatively recent origin, the role he has played in treatment certainly has no earmarks of youth. From the beginning he has applied both his knowledge and his efforts to supplying the physician with remedial agents. Much of the very best chemical talent of the world is now deep in the problems of new remedials with results that are often marvelous. Much

that you are able to do for the prevention, relief and cure of disease has come only after years of the most efficient and painstaking work of the chemist.

All of the foregoing is but preliminary to the two main concerns that I have in presenting this paper.

In the first place, the physician of the future will be much better prepared for service in his profession if, before he enters into training for it, even the premedical course, he is made to know from you men already out in practice that your own inability to use much that is extremely valuable in modern methods of diagnosis and treatment is due to the fact that your training in the fundamental sciences upon which much of it is based was not sufficiently broad and exacting. Not necessarily more time is required, but more profound application to the principles of Physics, Chemistry and Biology. We deprecate the attitude of many practitioners who boast that they never had any special training in these subjects and yet have been successful. A future physician, having imbibed such a spirit from a so-called successful physician before beginning the study of medicine, is almost damned before he starts. THIS IS NOT TWENTY-FIVE YEARS AGO.

The last and most important consideration is a plea for an even greater every day co-operation between the physician and the other scientific workers who have to do with the physical well-being of people. In this group the chemist has become an extremely important factor. And yet we find the two groups working more or less independent of each other, each performing a great service to the same end. In the very nature of the case, practicing physicians cannot go into the refinements of chemical procedure which is necessary for worthwhile results, nor can chemists utilize the many clinical manifestations which mean so much to the practiced physician, but it is my deliberate judgment that a genuine co-operation between the two groups would be a determining factor in the solution of many medical problems that now seem almost hopeless.

I venture to make a few suggestions for bringing about a better condition. I think they are practical.

(1) The Biochemistry course in Medical Colleges should have the most intimate sort

of relation with clinical medicine in all of its applications, the students actually seeing patients when practical. The teachers of this subject should be consultants in medicine in all problems involving chemical knowledge and should help in autopsies. Such a plan has been organized at the Medical College of Virginia.

(2) All medical groups should have a thoroughly trained chemist as full member of the staff. He may or may not be a physician, but should have a training in chemistry equivalent to that required of a Ph.D. in the subject. If I am correctly informed, no medical group in Virginia has such a man.

(3) Clinical laboratories should not be manned entirely by technicians who have been trained only in the method. At least one worker should be able to interpret results chemically.

Independent practitioners should arrange for co-operative work with chemists in one of the groups named above.

Summing up, then, this is distinctly an age of chemistry. Industry has realized it and is co-operating perfectly. Chemistry and Medicine are brothers in the healing art, but are not yet doing the fine team work that is justified by the slogan of modern chemistry, "Good Health, the ultimate aim of chemistry."

Medical College of Virginia.

FIVE YEARS' TREATMENT OF DIABETES WITH INSULIN.*

By E. G. HILL, M. D., Richmond, Va.

Five years have elapsed since the first dose of insulin was given, by Banting, to a human being. This boy is alive and able to earn his own living. He maintains a normal blood sugar, and his urine is sugar free on 27 units of insulin a day.

This is the proper time to look over the field and consider what has been accomplished in this five-year insulin period and what we may expect to accomplish in the future.

Joslin¹ has made a summary of the results of treatment of the different periods. He divided it into the Naunyn period which really was no treatment; the Allen period, the period of starvation, in which life was saved or rather prolonged; and, finally, the Banting or insulin period. He has only one diabetic child

living out of sixty-one seen between August, 1898 and January, 1914,—98.4 per cent dead in what he terms the Naunyn period. He has 52 living out of 169 seen from January, 1914 to August, 1922, during what he terms the Allen or starvation period,—69.2 per cent dead. He has 147 living out of 165 seen from August, 1922 to September, 1926, during the Banting or insulin period,—only 10.2 per cent dead.

The diabetic death rate among children in Massachusetts has decreased from 11 per cent in 1900 and 10 per cent in 1910 to 3 per cent in 1926.

Thousands of diabetics are alive now who would have been dead but for insulin. Thousands of diabetics are living comfortable lives and earning their own living who would be hopeless invalids but for insulin. Thousands of operations have been performed on those rendered surgically safe by insulin and thousands of lives have thereby been saved. The economic value of human life and suffering saved by insulin is almost incalculable.

Those of us who have been practicing medicine twenty-five years, remember the despair and hopelessness with which we began the treatment of a case of so-called total diabetes. You might as well have signed his death warrant as to have told a man that he had diabetes. The best we could do was to restrict his carbohydrates, when most of them very promptly went into coma and all died. We had disturbed the ketogenic anti-ketogenic ratio. We had severed the last strand of the cord of life. Or else they had a leg cut off for gangrene and then died.

Will insulin cure? Insulin cures diabetes as food cures hunger. The disease can certainly be arrested and health restored by insulin. Marked improvement of tolerance and diminished need for insulin commonly take place as the beginning of treatment.

There seems to be a prejudice on the part of the public against insulin treatment; they think that if insulin is once taken its use must be continued indefinitely. This is not correct. Insulin should be given just as soon as the diagnosis of diabetes is established, and kept up as long as indicated.

John² gives a list of 58 diabetics whose carbohydrate tolerance had increased to such an extent that insulin was no longer needed to maintain the normal blood sugar level. The ages of this series are from 18 to 79 years. The duration of diabetes from recent to 15

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia in Petersburg, October 18-20, 1927.

years. The periods since discontinuance of insulin were from one month to thirty-four months.

Diabetes affects the growth and weight in children. Insulin starts the growth again. Ladd³ reports thirty-five cases of diabetes in children in which the growth process had slowed down or ceased altogether. The effect of insulin in these severe cases of diabetes may be noted as follows:

1. Immediate gain in weight;
2. Usually coincident gain in strength and improvement in disposition;
3. Gain in stature usually follows gain in weight.

J. R. Williams⁴ reports that there is marked increase in food tolerance, body weight, and economic efficiency following the administration of insulin. Of 478 patients, 85 per cent are alive. There have been few deaths due to diabetes alone, where proper treatment was given. The tenure of life has been extended indefinitely.

Sansum⁵ has recently advocated high carbohydrate feeding to diabetics. He gives increasing amounts of carbohydrates and then gives enough insulin to metabolize the carbohydrates. He claims that, by the use of high carbohydrate diets, he has found that:

1. There is no difficulty in keeping patients sugar free;
2. The patients are restored to a more nearly normal state of physical and mental activity;
3. They are freed from the slightest traces of the acetone type of acidosis;
4. The potatoes, milk and fruits have enabled us to eliminate the acid ash type of acidosis which we believe has been a cause of the high incidence of blood vessel disease;
5. The diets are more palatable;
6. The patients lose their craving for forbidden foods, especially for the carbohydrates;
7. Such diets should afford the patients the best opportunity for partial recovery.

Geyelin⁶, of New York, has had good results in many cases where he has given increased amounts of carbohydrates and so has Richardson⁷, of the University of Pennsylvania.

If we consider the value of carbohydrates in the metabolic process, we will see the need of an ample supply.

Rosenfield, in 1885, said, "The fats burn in the fire of carbohydrates."

Du Bois⁸ says, "It has long been known that the complete oxidation of fat in the body could not be obtained unless some carbohydrates were being oxidized at the same time." When the available carbohydrate is insufficient, the organism "smokes" like a gasoline engine with an improper mixture. As a result, we have the formation of aceto-acetic and beta-hydroxybutyric acids—a ketosis. The symptoms of ketosis are well known; deep respiration, weakness, nausea, somnolence, coma. Diabetics and normal men on low carbohydrate diet show weakness, lassitude, inability to perform mental and physical labor and lack of resistance to infection.

Insulin not only metabolizes carbohydrates but causes them to be stored in the liver in the form of glycogen. The liver probably holds or contains from 200 to 300 grams of glycogen. Benedict could find 201 grams in his Lavanzin starvation case.

Vivian Hill,⁹ of London, has shown that when a muscle contracts, the reaction Glycogen \longrightarrow Glucose \longrightarrow Lactic Acid takes place, to be followed in the recovery phase by the reaction Lactic Acid \longrightarrow Glucose \longrightarrow Glycogen.

Hill says "The primary fuel of muscle is carbohydrate, the essential element in the machinery is lactic acid, itself derived from carbohydrate." "We find the whole oxidative cycle of recovery is carried out at the expense of carbohydrate."

The supply of carbohydrate in the form of glycogen in the liver and muscles is only about 200 or 300 grams or about one day's supply. This explains why the carbohydrate starved diabetic complains of weakness and inability to perform muscular effort, and is dull, physically and mentally.

I have tried this increased carbohydrate and increased insulin on a number of patients, and their improvement has been remarkable. Their feeling of well being, their increased energy and "pep" have been very noticeable.

Frank, Northmann and Wagner, working in Minkowski's Clinic at Breslau, have isolated a guanidine derivative from herring spawn called agmatin. This substance was found to possess the insulin-like effect of lowering blood sugar. This substance known commercially as "Synthalin" is being tried out in several

clinics in this country. The reports are encouraging. In some cases it may partially replace insulin. The great advantage is that it is given by mouth.

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RELATION OF INFECTION OF THE BILIARY TRACT TO THE PATHOGENESIS OF DIABETES MELLITUS: THE AGE AND SEX FACTORS IN ONE HUNDRED DIABETIC PATIENTS.*

By L. E. STUBBS, M. D., Newport News, Va.

During the last three years the opportunity of observing a fair number of diabetics has presented itself. The conclusions drawn are based upon the study of the first one hundred diabetics presenting themselves for study and treatment.

I have been very much interested in arriving at some conclusions as to the etiology of the condition. The pathology is fairly well known and, since the advent of Insulin, the treatment of even the most severe cases has been much simplified. Despite our advance in knowledge of the condition it is on the increase and all efforts should be exerted in the prevention of the disease.

It occurred to me that a review of my case histories, which are complete, would yield some information as to the predisposing and exciting causes of the symptom complex.

The under-lying cause of diabetes is pancreatitis. Acute infectious diseases and hematogenous infections from distant foci of infection are of great importance in the causation of this pancreatitis. In this paper I will

discuss only the relationship of infections of the biliary tract to pancreatitis, the under-lying pathological lesion of the disease.

Visher in a recent paper gives an excellent resume of the paths by which infections in the other abdominal structures may reach the pancreas. Quoting from his paper, "1. Infection may reach the pancreas from other organs by direct extension or by contiguity. This is possible, but it seems very improbable.

"2. Some writers assume that infection may spread through the lumen of the bile and pancreatic ducts. Unless there is obstruction at the ampulla of Vater, it seems hard to believe that regurgitation of bile into the pancreas ever takes place.

"3. Infections of the abdominal viscera may reach the pancreas by spreading through the general blood stream. This undoubtedly occurs and is of some importance in the etiology of pancreatitis.

"4. Infections of the organs supplied by the portal vein may reach the liver via the portal circulation, there causing a hepatitis. Inflammation may then spread from the liver to the gall-bladder, bile ducts and pancreas.

"5. Infections may reach the pancreas from other abdominal viscera via the lymphatics. This route is emphasized by several writers and seems to me to be the most important."

Deaver has emphasized the rich lymphatic supply of the pancreas. Its vessels anastomose freely with those of the neighboring structures. The regional glands are the pancreatico-splenic, superior pancreatic, superior gastric, hepatic, pancreatico-duodenal, anterior and posterior mesenteric, mesocolic, inferior pancreatic and periaortic group of glands. The pancreas sends lymphatic branches to all of these which may anastomose with lymphatics from the stomach, duodenum, spleen, liver, gall-bladder, bile ducts and colon. There is an especially free anastomosis between the lymphatics of the duodenum, gall-bladder, bile ducts and those of the pancreas.

There is experimental and clinical evidence of the passage of infection from the liver, gall-bladder, etc., to the pancreas. Graham and Peterman observed that Prussian blue injected into the wall of the gall-bladder followed the lymphatics into the liver and also passed down the lymphatics of the common duct and into the pancreas. Conversely, infection may pass from the gall-bladder to the

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liver and thence to the pancreas. The same authors observed that injection of pathogenic bacteria into the portal vein causes a hepatitis, and the infection spreads from the liver to the gall-bladder, bile ducts and pancreas. There can be no valid reason against the spread of infection to the pancreas from infection of the duodenum, stomach, colon, appendix, prostate and infected hemorrhoids.

Clinically, Eustis has recorded 36 cases of alimentary glycosuria of which 41 per cent have shown gall-bladder disease, and 16.6 per cent evidence of true diabetes. Eustis also gives reports of five cases of glycosuria which were cured by treatment of cholecystitis in every case except one. Harris also reports two cases of diabetes resulting from pancreatitis, secondary to cholecystitis. There have been several cases of glycosuria with cholecystitis in the hospital with which I am associated which have cleared up after surgical treatment of the gall-bladder infection. Allen believes that removal of all foci, whether they be in the gall-bladder, appendix, tonsils or teeth, should be carried out in the prophylaxis or treatment of diabetes. He remarks that the significant lesion is a pancreatitis and all predisposing factors of such a condition should be removed. Rabinowitch concludes from his study that nine times as many patients had both cholecystitis and diabetes as would be expected were the two merely coincidental. The incidence of diabetes is greater with cholecystitis than with cholelithiasis.

I have gone over my series with special reference to the occurrence of symptoms suggesting very strongly disease of the biliary tract. Such symptoms as gas, distention, upper right quadrant pain have been made note of. The diagnosis of biliary tract disease is admittedly not positive since in none of the series has there been operative intervention to confirm the diagnosis; however, the clinical symptoms have been such as to make the clinical diagnosis of gall-bladder disease in addition to diabetes. In fact, in several of the patients the only deterring factor against advising operation has been the presence of diabetes. In the hundred patients there is a history of digestive disturbances very suggestive of biliary tract disease in thirty-eight. In only six of these have there been paroxysms of upper right quadrant pain. These figures indicate quite conclusively the frequent as-

sociation between the occurrence of biliary tract disease and diabetes.

Surgeons have long recognized that inflammatory processes in the pancreas accompany cholecystitis as evidenced by the occurrence of glycosuria which disappears spontaneously with the subsidence of the causative pancreatitis. Still, as pointed out by Visser, progressive diabetes may result from cicatricial and degenerative changes long after the subsidence of the acute pancreatitis.

The influence of age on the occurrence of the disease is marked. Eight patients developed the disease between the ages of 10 and 20 years, 4 between 20 and 30 years, 2 between 30 and 40 years, 18 between 40 and 50 years, 42 between 50 and 60 years, 24 between 60 and 70 years, and 2 after 70 years. It appears that there is a gradual increase in the occurrence of diabetes with increasing age up to the age of 60. Beyond this point there is a decrease and especially after 65 years the decline is very acute, there being but 4 cases developing the disease after this age. By far the greater number occurred between the ages of 40 and 65 years—60 out of 100 cases. This accords with a recent report of Adams, who reports 1,000 patients observed at the Mayo Clinic. He finds that 593 of this number occurred after the age of 45.

The sex distribution in the 100 patients under consideration for all ages was 53 females and 47 males.

Among the 100 cases there were 70 whites and 30 negroes. This is a higher percentage among negroes than that usually given. It is to be noted that all of the negroes studied, except one, were from the better class and were relatively prosperous so that over-eating was perhaps a large factor in the occurrence of diabetes.

It has been emphasized by all writers on the subject that obesity plays a very important part in the causation of the disease. In my series this fact is very forcibly brought out in that 76 of the 100 patients were obese. All but one of these were markedly obese. Other writers report even a larger proportion, notably Joslin. It is certain that obesity plays a very important part in the predisposing etiology of the disease, a slighter exciting cause producing the disease than in the non-obese. It would seem that over-eating or obesity alone is an insufficient etiologic factor,

since exercise of a healthy organ usually causes hypertrophy rather than atrophy. Over-eating and obesity may predispose to constipation, colitis, cholecystitis and hepatitis and these in turn cause pancreatitis. Once the pancreas becomes infected, over-work by excessive ingestion of carbohydrates tends to aggravate this infection and clinical diabetes may result.

In passing, it is of interest to note that when diabetes does develop in those of normal weight it is more severe than in the obese. This probably represents a special predisposition to the disease and acute function with a resulting more severe type of disease.

Contrary to the prevailing opinion, my series shows but slight influence exerted by heredity as only six of the patients have a history of diabetes in their family. This is not because the factor of heredity has been neglected in taking the history, as a complete family history has been recorded on each patient and especially in those with diabetes.

SUMMARY.

1. The opinion is expressed that the underlying pathologic process in many cases of diabetes is pancreatitis.

2. A summary of the lymphatic connections of the pancreas with the other intra-abdominal organs is given.

3. Experimental and clinical evidence point to the spread of infection from other intra-abdominal organs to the pancreas with the production of a pancreatitis and in many cases a resulting glycosuria.

4. Study of the records of 100 diabetic cases observed showed definite clinical evidence of the presence of biliary tract disease in 38 or 38 per cent.

5. Diabetes is a disease that gradually increases in incidence with age up to 60, after which there is a sudden decline in frequency.

6. In the series under consideration it would seem to be more frequent in females than in males.

7. Obesity plays a very important part as a predisposing cause of diabetes.

CANCER OF THE RECTUM.*

By HARRY W. BACHMAN, M. D., Bristol, Va.

One person in ten, dying in middle life or past, dies of cancer. The subject of cancer is therefore one of commanding interest and uni-

versal appeal. Further reasons for this are found in that it spares no sex, age, or race, in the mystery that yet surrounds its causation, and in the all too frequent hopelessness of the situation it creates for its victim. No part of the alimentary tract, which is one of its common locations, is altogether free from its attack, although it is rare in that segment lying between the pyloric vein above and the termination of the ileum below. Its occurrence in the rectum in frequency is second only to that in the stomach. Fortunately, however, one cannot say that it is a disease commonly encountered in the daily routine of work. In over 1,000 complete clinical records of cases seen in a general surgical practice, I have observed cancer of the rectum but twice, and I know of but one other case that has been treated by a colleague in our hospital.†

The manner of its clinical occurrence may be illustrated by a brief resume of each of the two cases I have observed.

1. W. F. H., male, age 55. Admitted with complaint of pain in the hypogastrium and sacral region. Thirteen and one-half months previously, he suddenly became constipated to such an extent that he had to rely on the use of cathartics in increasing doses for each satisfactory bowel movement. Developing at the same time with his constipation was what may be described as a morning diarrhoea. Each morning, on arising, there would be a single passage of green watery material accompanied with mucus and blood. No other stools occurred without the use of a physic. His pain was said to have developed simultaneously with the above symptoms, and was described as a severe ache in the sacral region and hypogastrium. At times, he suffered with cramping sensations in the abdomen. Five months after the onset, anal protrusions appeared with the bowel movements, which caused a diagnosis of hemorrhoids to be made. He lost forty-eight pounds weight, and his strength rapidly waned. There was no venereal history, the Wassermann was negative, and he had had no previous illnesses of importance. Digital examination of the rectum showed, within easy reach of the finger, an annular lesion of the bowel with a lumen of less than 1 cm. The bowel was abnormally fixed in the contiguous tissues, there was marked albuminuria and pyuria, and numerous small lymph nodes were

*Read before the Clinch Valley Medical Society, at Norton, Va., April 29, 1927.

†Since this paper was written, another case has been encountered.

palpable in each groin. Through the proctoscope numerous easily bleeding more or less necrotic pedunculated projections were to be seen on the central margin of the lesion. On account of his marked weakness and the unfavorable local conditions attending the lesion with probable involvement of the urinary tract, the case was regarded as inoperable, in the terminal stage of carcinoma. The use of radium was declined, and two months later, at home, he died.

2. J. C. D., male, age 49. Family, marital, and previous medical history entirely negative. Chief complaint, loose stools with the passage of mucus and streaks of blood. He was in perfect health until three months before admission when he had suddenly developed what he believed to be a diarrhoea. At first, this had been attended simply with the passage of four or five loose stools each day, but after one week blood and mucus appeared in increasing amounts. At no time had he been constipated, he had had no pain, and he had lost no strength although his weight had declined perhaps ten pounds. At various times, he had consulted three physicians, one of whom had diagnosed "inflammation of the bowels", and the other two, hemorrhoids. No one of the three had examined the rectum. Examination showed within easy reach of the finger an insular lesion 5 or 6 cm. in diameter on the anterior wall of the rectum, not encircling the bowel. It presented an even granular surface which was elevated 5 or 6 mm. above the level of the normal mucosa. Bleeding on touch was very slight. The growth distinctly yielded a sensation of hardness to the examining finger. There was no tenderness, no fixation, no adenopathy, and no enlargement of the liver. Proctoscopic examination showed an otherwise normal mucosa up to 20 cm. above the anus. Venereal history and Wassermann reaction were negative. On March 4, 1927, immediately following his clinical examinations, a left iliac incision was made for the purposes of exploration and colostomy. I could feel no nodularity in the liver, no adenopathy in the meso-sigmoid, and the pelvic peritoneum seemed to be free from metastases. After seventy-two hours, the colostomy was opened, and two weeks later a radical posterior resection of the rectum, including a wide margin of skin around the anus, the sphincter muscles, the ischio-rectal fat and as much of the surrounding tissue as possible,

was done. Eighteen days later, the patient was sent home with a rapidly closing wound in healthy condition. The operation had exposed the membranous urethra, prostate, bladder, seminal vesicles, and ureters, and by opening the peritoneum it was possible to bring down and remove four inches of sigmoid and its mesentery. Microscopically, the tumor was adenocarcinoma. No lymph-glandular involvement was found.

Rectal cancer, comprising about 4 per cent of all cancers, is most commonly seen between the age of 40 and 70. A review of several reported series of cases seems to indicate a slightly greater incidence in the male than in the female, in about the ratio of 55 to 45. According to a report by Eichhoff covering 800 cases, the lesion arose in the ampulla in 60 per cent; in the anus, .3 per cent; in the pars perinealis, 7.3 per cent between the pars perinealis and the lower limit of the ampulla, 11.5 per cent; upper part of the ampulla, 11 per cent; while 6 per cent covered the entire rectum. Gant, in his text-book, locates 10 per cent in the anal canal, 50 per cent in the ampulla, which lies between the inferior and middle valves of Houston, 20 per cent in the upper rectum lying between the middle and superior valves of Houston, and 15 per cent above the superior valve of Houston or in the true recto-sigmoid. In its incipency, every rectal cancer is limited to the mucosa. As with cancer elsewhere, its dissemination is by continuity and by contiguity, by way of the lymphatics, and through permeation into vascular channels. Fortunately, the lymphatics of the rectum are comparatively sparse, and pathological investigation and clinical experience have shown that extension of rectal cancer by continuity and by contiguity is of greater importance than spread by the lymphatics or by permeation into vascular channels (Turner). For this reason it is often strictly a local disease for comparatively a long time, and by the same token its early radical removal by surgical measures offers more hope than one can give in any other type of alimentary tract cancer. In 55 per cent of cases, the lesion is found to encircle the bowel completely, like a napkin ring, while in 44 per cent the lesion is a circumscribed or insular type of growth. The anterior wall seems to be involved by the insular lesion slightly oftener than the posterior wall. Microscopically, about 86 per cent of the lesions

are adeno-carcinoma, the colloid carcinoma coming next in frequency. Borders has demonstrated their varying degrees of malignancy can be accounted for, and the prognosis largely foretold, by the amount of cellular differentiation that is present in the tumor.

There is no thought more worthy of emphasis regarding the symptom and diagnosis of rectal cancer than this: That by actual clinical experience and measurements of specimens after operation, nine out of every ten cancers in the rectum are within reach of an examining finger and can be diagnosed by digital examination of the rectum. There are no early symptoms that are pathognomonic, but if every individual presenting rectal symptoms have at least a digital examination of the anal canal, but few cases of rectal cancer will be overlooked. Especially, though, should we suspect cancer in individuals of middle life or past who have blood and mucus in the stools, or who develop an unusual constipation. Frequently the blood and mucus are believed by the patient to indicate diarrhoea and he complains of "diarrhoea", or diarrhoea alternating with constipation. If there is much obstruction, cramping pains in the abdomen will occur. Piles are associated in 28 per cent of rectal cancers (Jacobs). At times, pain in the sacrum or perineum will be noted, or occasionally only pruritus ani, or tenesmus. Progressive weakness or loss of weight should always suggest the possibility of malignancy, and if we bear in mind that every patient is entitled to a thorough examination and that no examination is complete without an examination of the rectum, the cases that are overlooked will be few indeed.

The nature of the case once being known, what can be done for the condition? The answer is determined primarily by the presence or absence of demonstrable metastasis, and in a secondary sense by the willingness or unwillingness of the patient to accept a permanent artificial anus. It is unfortunate that sentiment is so strongly against the artificial anus. As a matter of fact, it seems to me that the physician is under an obligation in the majority of cases to urge his patient to accept it. It does not of itself shorten life, it can be made in such a way that many, in time, gain some degree of control over its action, and there are sanitary and comfortable appliances available for its care. It should be urged, however, for the following reasons especially:

(1) It will relieve obstruction and the resulting toxemia. (2) It permits ulceration in the lesion to heal, and inflammation to subside. There is often striking improvement in the location condition of the cancer following colostomy. (3) Through the above action, or the action of radium, the case that seems at first to be inoperable may later be recognized as operable. (4) It permits exploration of the liver, mesosigmoid, pelvic peritoneum and retro-peritoneal pelvic lymph nodes, thus affording a fairly certain method of recognizing the cases frankly hopeless and therefore unsuitable for radical operation. There are but few instances indeed in which it is not justifiable as a palliative procedure, and even in the otherwise inoperable case it may prolong life to a remarkable degree. Furthermore, it is hardly a matter of debate any longer that any operation for the cure of rectal cancer which does not employ a permanent colostomy instead of the attempted restoration of the anus is a poor operation.

Numerous types of colostomy openings have been devised, yet only two seem to be practicable, and of the two I have no hard and fast ideas as to which is the better. That made through the left rectus has the advantage of better adaptability to the use of colostomy bag, while that made through a left iliac muscle splitting incision has the advantage of having a longer distal loop for subsequent removal—and is perhaps less productive of danger of intestinal obstruction.

It is in the nature of things that any operation which can approach the ideal for the cure of cancer must do all of three things: It must destroy or remove the primary lesion in its entirety; it must remove every secondary deposit that does not involve the sacrifice of a vital function; thirdly, it must be accomplished by a technique that does not carry an unjustifiable risk to the life of the patient.

In cancer of the rectum the first proposition in the ideal—that of total extirpation of the primary lesion,—can be accomplished with a fair amount of ease. The second proposition predicates an accurate knowledge of the lymphatic system of the recto-sigmoidal segment, and connotes the removal of all tissue that may be involved through this system. Two groups of lymphatics are present in the rectum, the intramural and the extramural, as has been shown in a splendid study of the subject by W. E. Miles. The intramural network

runs chiefly in the submucosa and is responsible for only a limited spread of the disease. The extramural group, however, as described by Miles, is extensive. From his study of the spread of rectal cancer, he described three zones in which secondary deposits occur. There is the zone of downward spread, comprising the anal skin, the external sphincter, and the ischio-rectal fatty area. The zone of lateral spread comprises the levatores ani, the retro-rectal lymph nodes lying in the hollow of the sacrum, the base of the bladder and seminal vesicles, or the vagina, cervix, and broad ligaments, and the lymph nodes about the internal iliac vessels. The zone of upward spread embraces the mesosigmoid in its entirety, the pelvic peritoneum, the lymph nodes at the bifurcation of the left common iliac, and the paracolic lymph nodes. Of these, the most important are the ischio-rectal fat, the levatores ani and the retro-rectal lymph nodes. My object in recounting the various structures is to show what an extensive procedure their removal, individually described by Coffee and by Miles as the abdomino-perineal method of resection, necessarily entails and the reason for the high mortality of this operation. Miles reports his own mortality at 18 per cent, and in the hands of less clever workers it must certainly be higher. There are cases in which the location of the growth is such that it cannot be removed without trans-abdominal attack, but in the large majority of cases the modern two stage posterior resection is, to my mind, a vastly safer operation and yields a greater total of post-operative years when the results in all cases treated by the two methods are comparatively considered.

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THE VALUE OF THE GRAHAM TECHNIQUE IN THE STUDY OF GALL-BLADDER DISEASE.*

By EDWIN A. MERRITT, M. D., Washington, D. C.

It is a far cry from the patient who is fair, fat and forty back to the embryo of that same individual and yet a reasonably satisfactory appreciation of gall-bladder function certainly involves some knowledge of embryology, together with the physiology and anatomy of the liver and biliary tracts. These subjects will therefore be briefly reviewed in order that we may have a better understanding of what is properly and popularly known as the Graham Gall-Bladder Technique, a contribution to diagnostic methods which certainly marks an epoch in Medicine.

EMBRYOLOGY OF THE GALL-BLADDER

When the head and tail folds of the embryo develop (about $2\frac{1}{2}$ mm. or about twenty-eight days old) there are formed—both cranial and caudal to the spherical vitelline sack blind entodermal tubes—the fore-gut and hind-gut, respectively. The region between these intestinal tubes opens ventrally into the yolk-sack, which is sometimes termed the mid-gut. The fore-gut later forms part of the oral cavity and its further differentiation into the pharynx and its derivatives, and into the esophagus,

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the respiratory organs, stomach, duodenum, jejunum and portion of the ileum. From the duodenum arise the liver and the extra-biliary tracts, including the gall-bladder, and also the pancreas. The hind-gut, at the attachment of the yolk-sack, extends caudally to the cloaca into which the allantois opens. The hind-gut is differentiated into portion of the ileum, cecum, colon and rectum. The mid-gut or yolk-sack loses its connection with the entodermal tube in an embryo 7 mm. or about forty days o.d. Knowing the gall-bladder is developed from the same structure as the gastro-intestinal tract and is very similar in its histologic structure, we will not be surprised to find it possesses peristaltic movements which aid in evacuation of its contents. These are stimulated not by a nervous or psychic mechanism, but by a chemical stimulant or hormone. We shall discuss this under the physiology of the gall-bladder.

ANATOMY OF THE GALL-BLADDER

It is a conical, pear-shaped, musculo-membranous sack, lodged in a fossa on the under surface of the right lobe of the liver. It is from 7 to 10 cm. long, $2\frac{1}{2}$ cm. in breadth, and holds 30 to 35 c.c., approximately one ounce. It is arbitrarily divided into a fundus, body and neck. The fundus is directed downward and projects beyond the anterior border of the liver. The body and neck are directed upward. The fundus is completely covered by peritoneum, and occasionally the entire organ is invested in a serous membrane forming a short mesentery and connecting it with the liver.

Its structure is of utmost importance. Since it is an off-shoot of the fore-gut, from which develops the gastro-intestinal tract, it has similar structure and also somewhat similar function to the gastro-intestinal tract (namely digestion of food).

HISTOLOGIC STRUCTURE

1. *External Coat—Serous*, derived from the peritoneum.

2. *Fibro-Muscular Coat*, thin, strong layer forming the frame-work of the sack.

3. *Mucosa—Internal Coat*, which is elevated into minute rugae. The mucosa is continuous with the hepatic duct and also with the mucous membrane of the ducts of the liver, and through the common bile-duct with the mucous

membrane of the duodenum. It is lined by columnar epithelium. The cystic duct from the neck of the gall-bladder joins the hepatic duct to form the common bile duct, which is about 4 cm. long. The common bile duct, formed by the junction of the hepatic and the cystic ducts, lies in front of the portal vein and to the right of the hepatic artery and in conjunction with the pancreatic ducts of Wirsung and Santorini, empties by a common orifice into the summit of the duodenal papilla on the medial side of the descending portion of the duodenum, known as the ampulla of Vater.

PHYSIOLOGY OF THE GALL-BLADDER

The function of the gall-bladder is:

1. To serve as a reservoir for the bile;
2. To concentrate the bile;
3. Through its emptying, helps to emulsify and digest the fats.

When the gall-bladder is removed, the remaining extra-hepatic biliary tract dilates, showing the necessity for a reservoir for the storage of bile, and the importance of not removing the gall-bladder unless it is necessary. Sosman, in his studies on the function of the gall-bladder, found that fats by mouth cause the quickest and by far the most marked effects on the gall-bladder. Twenty minutes after the ingestion of fats and yolk of egg the normal gall-bladder will contract and practically empty itself. The gall-bladder empties on ingestion of fats, and such authorities as Howell, Halliburton, and Starling agree it is the result of a chemical or a hormone reaction. The gall-bladder does not empty by nervous mechanism, as was proven by the celebrated experiments of Pavlov on psychic effect on the digestive juices. Sosman also found that the psychic effect does not influence the gall-bladder. Neither does taste nor smell. Carbohydrates and proteins have no effect,—only fat seems to empty the gall-bladder, for it is only in fat metabolism that the bile is essential.

Drugs, such as atropine, pituitrin, and adrenalin by hypodermic had no effect. Mechanical factors, such as forced respiration, heat, and cold and a stimulation of the ampulla of Vater had little or no effects. Magesium sulphate by the duodenal tube has only a moderate effect on the emptying of the gall-bladder (which makes such treatment of diseased gall-bladders by the leading gastro-enterologists in the country rather doubtful). That the peris-

taltic contraction of the musculature of the gall-bladder greatly helps the gall-bladder to empty is agreed upon by all authorities.

Since the discovery by Dr. Leonard in 1898 that an opaque substance, such as bismuth, into the gastro-intestinal tract will throw a shadow, many investigators have been seeking some opaque material which, when injected into the blood, would be excreted by the liver together with the bile, and thereby throw a shadow on the plate of the gall-bladder.

Graham, *et al.*, began their work on the theory that if a non-toxic soluble substance, opaque to the X-ray could be given to a patient, it will be carried to the gall-bladder with the bile. Knowing that the gall-bladder concentrates the bile, Graham reasoned that certain time would elapse before a shadow of maximum density would appear. It is no wonder that the halogens presented themselves to him for consideration since so many of these salts are soluble, non-toxic and are so frequently used in medicine. Phenolphthalein of the phthalein groups was used in combination with the halogens. The first salt recommended was tetrabromphenolphthalein, which was found relatively toxic. The next salt recommended was tetraiodophenolphthalein, substituting the iodine for the bromine. Graham, Cole, Carman, Whitaker, and Williken found this salt to be satisfactory. The question of administration was rather an important factor, and it was found the dye could be given orally or intravenously. There is no doubt that the intravenous method is by far the surer, as the dye enters the blood stream directly, while if administered orally there are the chances of poor absorption of the dye, due to the non-solubility of the capsules. Experience has shown some of the capsules to pass out the gastro-intestinal tract without even being touched by the intestinal juices. Graham and Cole report 75 per cent accuracy by oral method and 97 per cent by the intravenous. The intravenous method, if properly administered, the technique of which we will discuss later, gives as little if not less reaction than the oral. Now it is reasonable to conclude, since the dye gets into the gall-bladder with the bile excreted by the liver, that if no shadow appears, three disturbing factors are possible: 1. The liver may be too badly diseased to secrete bile, whatever the disease may be due to,—cirrhosis, abscess, etc., 2. There

may be an occlusion in the extra-hepatic biliary tract before it reaches the cystic duct or occlusion of the cystic duct, either by inflammation or by stones; 3. There may be a disturbance of the function of the gall-bladder.

We not only have accurate means of studying disease of the gall-bladder but also the function of the gall-bladder can be studied. Its size, shape, contour, and time of evacuation, position, adhesions, and stones may be studied by this method.

This test very often enables us to determine only slight variation from the normal, and by making early diagnoses the gall-bladder can be removed and the patient relieved of symptoms. The Graham test has become routine in all of the large clinics in America.

The diagnosis of a diseased gall-bladder without this test is one of the most difficult the profession has to cope with, as most of you know, since its vague symptomatology, particularly in the early stage, simulates so many other gastro-intestinal diseases. When the Graham test shows the gall-bladder to be diseased, and our experience in over a thousand cases has borne this out to be true, and the patient comes to operation and the surgeon decides on macroscopic examination that the gall-bladder is normal, the radiologist is justified in having the gall-bladder extirpated if he can persuade the surgeon to do so, and upon microscopic examination the gall-bladder will be found pathological in 98 per cent of the cases.

We have observed in our laboratory that the dye acts as an oxytoxic particularly in females where the menstrual period is not far off. Its use, therefore, in any stage of pregnancy is for this reason contraindicated.

TECHNIQUE

Drug Used: Tetraiodophenolphthalein in an aqueous solution intravenously. If the patient weighs 23 lbs., 3.5 grams are given, and, if less, the dose is reduced to 3 grams. The drug is dissolved in 30 c.c. of redistilled water and sterilized over a water bath for fifteen minutes.

Great care should be exercised in giving the solution intravenously since it sets up a violent irritation when injected directly into the tissues. It is our custom to use only re-sharpened needles but in all other respects the technique is identical with the usual intravenous procedure.

The patient reports in the morning without having had any food since the preceding evening meal.

Following the injection, which is given slowly by the gravity method, the patient reclines for a few minutes and is then permitted to depart, returning for the 5, 8, and 24-hour roentgenograms, with instructions to take only a glass of milk after the first and second roentgenograms, and a full meal is permitted following the third, and usually last. In rare cases a fourth film is made on the following morning if the other three examinations are not conclusive.

ROENTGEN TECHNIQUE

This is not unusual, but a fixed routine is employed in each case, in that the position of the first film with reference to the patient's body is marked on the body so that subsequent films will show the gall-bladder in an identical location. Also, the various factors employed in making the initial film are recorded and duplicated in making subsequent examinations. This results in roentgenograms which show a uniform density, with the gall-bladder (if shown) occupying the same position on all three or four films.

SUMMARY

The examination is indicated in practically all subjects when symptoms point directly or indirectly to gall-bladder disease and when no severe constitutional disease is present.

The dye may be given intravenously or *per os*, but the former is productive of the best results.

1909 *Massachusetts Avenue, Northwest.*

THE TREATMENT OF ECLAMPSIA WITH MAGNESIUM SULPHATE.*

By M. PIERCE RUCKER, M. D., Richmond, Va.

In the modern treatment of eclampsia as developed by Straganoff, Tweedy, McPhearson and others, the chief aim is the control of the convulsive seizures. Of course other measures, such as the forcing of fluids to increase the activity of the kidneys, the giving of digitalis to guard against heart collapse, and the posture of the patient to avoid aspiration of material into the larynx and bronchi, are important, but in the presence of the emergency of repeated convulsions they are of secondary importance.

The chances of recovery of the mother varies inversely with the number of fits, and our first concern should be to stop the fits as quickly as possible. Loud noises, bright lights, and unnecessary disturbance of the patient should be prohibited. Straganoff goes to the extreme of giving a little chloroform before administering a hypodermic. It is certainly not too much to ask that the hypodermic needles be sharp. Many drugs have been advanced for the control of the spasms; viz.: morphin, chloral hydrate, sodium bromide, paraldehyde, to mention a few that are most widely used. In 1925, Lazard reported his results with the use of magnesium sulphate intravenously, and in the same journal (*Am. J. Obst. & Gynec.*, Feb., 1925) Lincoln and Alton reported a small series of eclamptics treated with magnesium sulphate intradurally. Dorsett (*Am. J. Obst. & Gynec.*, 11:227, 1926) of St. Louis has treated with considerable success a series of cases by intramuscular injection of this remedy.

My own experience with magnesium sulphate began when the journal containing Lazard's first article came out. Dr. Hooker asked me to see a case of antepartum convulsions with him at the Memorial Hospital. We controlled the convulsions fairly well with morphin, chloral, bromides, etc., until the delivery. The convulsions, however, returned after delivery and the usual remedies failed completely. As a last resort, we decided to try magnesium sulphate intravenously. The result was so dramatic that its use has been continued.

I have for your consideration forty-six cases of eclampsia which fall into two groups. In group I (cases 1 to 33 inclusive) are the cases treated at the Memorial and St. Philip Hospitals. In this connection, I have to thank Dr. J. E. Rucker who has had charge of most of these patients and who has kindly abstracted their histories. Most of them are "neglected" cases that have had no treatment until after convulsions have begun. Many were brought in by the city ambulance with no history of the number of convulsions. They have been treated by various members of the staff, and the treatment has varied somewhat in such details as the preparation of digitalis used, the use of colonic irrigations, and the use of glucose, etc. The essentials of the conservative treatment have, however, remained unchanged. It is interesting to notice how the magnesium sulphate treatment has spread among the members of the staff.

*Read at the meeting of the Church Hill Medical Society, May 13, 1927.

Group II (cases 34 to 46) is composed of private cases seen in consultation. In practically all of these cases the prodromal symptoms were recognized and treatment was begun before the onset of the convulsions. In this group are included three cases treated at the Johnston-Willis Hospital by Drs. Johns, Wingfield and Carter, and my thanks are due these gentlemen for permission to report their cases.

In other words, I am including in this report all the cases of eclampsia that have been treated at the Hospital Division of the Medical College of Virginia and at the Johnston-Willis Hospital since my first case treated with magnesium sulphate and all the cases I have personally treated elsewhere. Had I selected only the cases who received magnesium sulphate I would have excluded the two maternal deaths, but, in order to avoid any criticism of selecting the cases for treatment with the new remedy, I have included all. As a matter of fact, what selection there has been has been unfavorable to the magnesium sulphate treatment. The patients who did not receive this remedy were either the patients of doctors who preferred some other method of controlling the convulsions or else were patients who ceased having convulsions soon after entering the hospital. Many of the mild cases belonged to this latter class.

SUMMARY OF CASES

Case 1. Mrs. P. P., white, 24, I-para, admitted to Memorial Hospital 3-22-25 after her first convulsion. Blood pressure on admission was 160/100. Urine contained a heavy trace of albumin, hyaline and granular casts. She was given .065 gm. morphin, 300 c.c. of 10 per cent glucose solution intravenously, high colonic irrigations, gastric lavage and 7.5 c.c. paraldehyde. She delivered herself of a live female baby after the 13th convulsion. Half an hour later she had another convulsion. She was then given 20 c.c. of a 10 per cent solution of magnesium sulphate intravenously. Patient rapidly regained consciousness. There were no more convulsions. Discharged 3-28-25.

Case 2. M. S., colored, 18, I-para, admitted to St. Philip Hospital 3-28-25 after her 1st convulsion. On admission there was edema of feet. Blood pressure was 145/90. Patient was somewhat irrational. Urine contained an abundance of albumin, granular and hyaline casts. Treatment consisted of morphin .016 gm. q. 4 hours, tincture digitalis, high colonic

irrigations and gastric lavage. She delivered herself of a girl baby that died on 3d day. The mother was discharged 4-9-25 in good condition.

Case 3. B. S. colored, 22, I-para, admitted to St. Philip Hospital 4-9-25 with history of headache, visual disturbance, edema, and two convulsions. On admission she was irrational. Blood pressure was 140/110. Urine showed a good trace of albumin. No casts. Patient had her third convulsion after getting to the hospital. Treatment consisted of morphin .016 gm. q. 4 hours, tincture digitalis, sodium bromide 1.95 gm., gastric lavage, and high colonic irrigation. Delivered of a living baby. Discharged 4-26-25.

Case 4.—E. S., colored, 17, unmarried, I-para, admitted to St. Philip Hospital in convulsions, blood pressure 168/112. Urine contained a quantity of albumin, sugar, hyaline and granular casts. She had 9 convulsions in 12 hours before delivery of a still-born male, and one convulsion afterwards. Treatment consisted of morphin .032 gm., tincture digitalis, 400 c.c. of blood was removed and replaced with 500 c.c. of a 20 per cent glucose solution. Morphin .016 gm. q. 4 hours, and 20 c.c. of a 10 per cent solution of magnesium sulphate was given after her 5th convulsion. 300 c.c. of blood were removed and 400 c.c. of 20 per cent glucose solution were given and finally a second intravenous dose of 20 c.c. of a 10 per cent solution of magnesium sulphate was given. Discharged in good condition 5-24-25.

Case 5. L. B., colored, 19, unmarried, I-para, admitted to St. Philip Hospital in convulsions. Blood pressure 158/96. Urine contained abundance of albumin and acetone, hyaline and granular casts. Treatment consisted of sodium bromide, chloral hydrate and high colonic irrigations. The patient had 2 convulsions after admission and delivered herself of a still-born female infant. She was discharged in good condition 5-16-25.

Case 6. M. S., colored, age 19, I-para, admitted to St. Philip Hospital 6-23-25 after her 1st convulsion. Blood pressure was 160/80. Urine contained a trace of albumin, hyaline and granular casts. Treatment consisted of morphin .016 gm., tincture digitalis, chloral hydrate .65 gm., sodium bromide .65 gm., high colonic irrigations and gastric lavage. After her 4th convulsion in the hospital she was

given 20 c.c. of 10 per cent magnesium sulphate. She had 6 more convulsions and was given 15 c.c. of 10 per cent magnesium sulphate. There were no more convulsions. She had a transverse presentation and was delivered of a still-born boy by version and extraction. Discharged 7-2-25 with a blood pressure of 175/105.

Case 7. M. C., colored, age 17, I-para, admitted to St. Philip Hospital 7-16-25 having post-partum convulsions. Blood pressure was 155/60. Urine was negative. She had 3 convulsions in 4 hours after delivery, when she was given 20 c.c. of 10 per cent magnesium sulphate. Patient had 2 more convulsions. Besides the magnesium sulphate, the treatment consisted of morphin .01 gm., q. 4 hours, tincture digitalis, and an occasional dose of sodium bromide and chloral hydrate. Discharged 7-29-25.

Case 8. E. G., colored, age 17, I-para, admitted to St. Philip Hospital 7-24-25 in convulsions. Blood pressure was 220/120. Urine contained albumin and granular casts. Treatment consisted of morphin .016 gm., q. 4 hours, and high colonic irrigations. After her 7th convulsion, she was given 20 c.c. of 10 per cent solution of magnesium sulphate. There were no more convulsions. Patient delivered herself of a still-born child 7-26-25. Discharged 8-6-25 in good condition.

Case 9. E. W., colored, age 36, V-para, admitted to St. Philip Hospital 10-2-25 on account of convulsions. Blood pressure was 220/40, general edema. Urine contained albumin, acetone and granular casts. She had no convulsions in the hospital. Treatment consisted of morphin .016 gm. q. 4 hours, tincture digitalis and sodium bromide. Labor was induced. Still-born baby. Patient was discharged in good condition 10-27-25.

Case 10. Mrs. S. M., age 36, multipara, admitted to the Memorial 11-29-25 in convulsions. Blood pressure was 240/140. Urine contained abundance of albumin, hyaline and granular casts. Treatment consisted of morphin .032 gm., followed by doses of .016 gm. every 2 to 3 hours, high colonic irrigations and venesection. Patient delivered herself of a 6123 gm. still-born male infant. After delivery there was marked pulmonary edema. Patient died 11 hours after admission to the hospital.

Case 11. C. T., colored, age 18, I-para, ad-

mitted to St. Philip Hospital 1-25-26 in coma. Blood pressure was 138/110. Urine contained abundance of albumin, hyaline and granular casts. Treatment consisted of morphin .016 gm., q. 4 hours, chloral hydrate 2.1 gm., sodium bromide 2.1 gm., tincture digitalis 3.75 c.c., hyoscin .00065 gm., venesection of 300 c.c., followed by 200 c.c. of 20 per cent glucose solution intravenously. The patient had 12 ante-partum convulsions after entering the hospital and 3 post-partum ones. After her 2d post-partum convulsion, she was given 20 c.c. of a 10 per cent magnesium sulphate solution intravenously. The baby was a still-born male. Patient was discharged 2-26-26.

Case 12. S. H., colored, age 21, I-para, admitted to St. Philip Hospital 2-18-26 in convulsions. Blood pressure 135/90. Urine contained an abundance of albumin, acetone, hyaline and granular casts. Treatment consisted of morphin .01 gm. q. 4 hours, tincture digitalis, high colonic irrigations, 5 c.c. of 25 per cent of magnesium sulphate intramuscularly on second day, chloral hydrate and sodium on 3d day. The patient had 4 ante-partum convulsions in the hospital and 20 post-partum convulsions. Spontaneous delivery of a live boy. Both patients left the hospital in good condition 3-12-26.

Case 13. M. B., colored, age 18, I-para, admitted to St. Philip Hospital 4-20-26 after her 3d convulsion. Blood pressure was 180/100. Edema. Urine contained a good trace of albumin and granular casts. Treatment consisted of morphin .016 gm. q. 4 hours, venesection (500 c.c.) and 200 c.c. of a 20 per cent glucose solution intravenously. Venesection and glucose repeated 10 hours later, luminal .098 gm., digitalone 1 c.c. q. 4 hours, and high colonic irrigation. Patient delivered herself of a live boy after her 10th convulsion. Baby died in the hospital. Patient discharged in good condition 5-5-26.

Case 14. M. S., colored, age 21, unmarried I-para, admitted to St. Philip Hospital 5-24-26 in convulsions. Blood pressure was 210/104. Urine contained abundance of albumin and casts. She had 6 convulsions in two hours after admission. Twenty c.c. of 10 per cent solution of magnesium sulphate were given intravenously. She had a convulsion 6 hours later and delivered herself of a still-born infant 12 hours after admission. Besides the magnesium sulphate, treatment consisted of

morphin .032 gm. on admission, colonic irrigations, morphin .016 gm. q. 4 hours, digitalone 2 c.c. q. 6 hours. Discharged 6-13-26.

Case 15. E. P., colored, age 36, multipara, admitted to St. Philip Hospital in convulsions. She had pulmonary edema. Blood pressure was 230/130. Urine contained albumin and acetone. Treatment consisted of morphin .016 gm. q. 4 hours, digitalone 1 c.c. q. 4 hours, high colonic irrigations, caffein and sodium benzoate .195 gm. q. 4 hours. Patient had two convulsions after entering hospital, delivered herself of a still-born male infant, and died 24 hours afterwards.

Case 16. R. S., colored, I-para, admitted to St. Philip Hospital 6-24-26 after her first convulsion. Blood pressure was 140/67. Urine contained abundance of albumin, hyaline and granular casts. She had 6 convulsions inside of 2 hours after entering the hospital. She was then given 20 c.c. of a 10 per cent magnesium sulphate solution intravenously. She had 3 convulsions in the next 4 hours; 15 c.c. of a 10 per cent magnesium sulphate solution were then given. In the next 24 hours she had 3 convulsions. She delivered herself of living twins. Two days after delivery, she had 3 more convulsions and was given 20 c.c. of 10 per cent magnesium sulphate solution. Twelve hours later she had 2 more convulsions. Besides the magnesium sulphate, treatment consisted of morphin .016 gm. p.r.n., tincture digitalis 9.4 c.c., chloral hydrate 1 gm., and sodium bromide 1 gm., daily, for 3 days. Patients were discharged in good condition 7-9-26.

Case 17. A. C., colored, age 16, unmarried. I-para, admitted to St. Philip Hospital 7-26-26. She was delivered in her home and had a convulsion 1 hour later and several more before she was gotten to the hospital. Blood pressure was 160/100. Urine contained abundance of albumin and granular casts. She was given 20 c.c. of a 10 per cent magnesium sulphate solution on admission. In the next 2 hours she had 5 convulsions. She was then given 5 c.c. of a 10 per cent solution intravenously. In the next 12 hours, she had 2 more convulsions, and 4 c.c. of 10 per cent magnesium sulphate solution were given intravenously. No more convulsions. Other treatment consisted of morphin .016 gm. on admission and .01 gm. p. r. n., chloral hydrate and sodium bromide by rectum q. 4 hours for 2 days. Twelve hours after admission, she was given a pint of water

and 7.5 c.c. tincture digitalis through a nasal tube. This was repeated 5 times at intervals of 6 hours. Discharged in good condition 8-8-26.

Case 18. F. L., colored, age 22, I-para, admitted 8-4-26 in convulsions. Blood pressure was 230/120. The urine contained an abundance of albumin and granular casts. Patient had 8 convulsions in the first 1½ hours in the hospital. She was given 20 c.c. of a 10 per cent magnesium sulphate solution. There were no more convulsions. Other treatment consisted of morphin .032 gm. on admission, sodium bromide and chloral hydrate for 3 days, tincture digitalis 7.5 c.c., and 1,000 c.c. of water through a nasal tube every 8 hours until the patient could swallow. Twenty-four hours after admission, venesection was done to relieve edema of the lungs. On the third day labor was induced with a bougie and a six months' still-born fetus delivered. The patient was discharged in good condition 9-15-26.

Case 19. A. M., colored, age 17, I-para, admitted to St. Philip Hospital 9-1-26 having post-partum convulsions. Blood pressure was 180/100. Urine contained albumin, hyaline and granular casts. After her second convulsion in the hospital she was given 20 c.c. of a 10 per cent solution of magnesium sulphate. There were no more convulsions. Other treatment consisted of morphin .016 gm. on admission, bromide and chloral, tincture digitalis, and water by nasal tube. Discharged 9-15-26 in good condition.

Case 20. M. J., colored, age 22, I-para, admitted to St. Philip Hospital 10-1-26 after her sixth convulsion. Blood pressure was 122/80. The urine contained abundance of albumin, hyaline and granular casts. No convulsions after admission. She delivered herself of a still-born baby on third day. Treatment consisted of tincture digitalis, bromide and chloral and water by nasal tube. Magnesium sulphate (20 c.c. of 10 per cent solution) was given intravenously for muscular twitching 24 hours after admission. Discharged 10-17-25 in good condition.

Case 21. Mrs. L. I., 35 years of age, multipara, admitted to Memorial Hospital 10-21-26 in convulsions. Her convulsions started 6 days after delivery. Blood pressure was 182/80. Urine contained a good trace of albumin, hyaline and granular casts. Treatment consisted of 20 c.c. of magnesium sulphate solution in-

travenously $\frac{1}{2}$ hour after admission. No further convulsions. She was given morphin, sodium bromide and luminal. Discharged in good condition 10-31-26.

Case 22. Mrs. M. E., age 18, I-para, admitted to the Memorial Hospital 12-6-26 after her second convulsion. Three hours after admission she had 3 convulsions. Six hours after she was given 20 c.c. of a 10 per cent magnesium sulphate solution intravenously. Two hours later she had 2 convulsions. Twelve hours after admission she had her 8th convulsion. Twenty c.c. of magnesium sulphate (10 per cent solution) were now given intravenously. An hour later she had a spontaneous delivery of a living infant. Blood pressure on admission was 130/80. Urine contained hyaline and granular casts and an abundance of albumin. Other treatment consisted of morphin .016 gm. and q. 4 hours p.r.n. chloral hydrate and sodium bromide, 1,000 c.c. of water by nasal tube b.d. and tincture digitalis. Discharged in good condition 12-16-26.

Case 23. L. H., colored, 17 years, unmarried, I-para, admitted to St. Philip Hospital 12-6-26 in convulsions. She had 1 ante- and 1 post-partum convulsion in the hospital. She was then given 20 c.c. of 10 per cent magnesium sulphate solution intravenously. No more convulsions. Urine contained albumin but no casts. Treatment consisted besides the magnesium sulphate, of morphin, bromide and chloral, water by mouth and high colonic irrigations. Both patients discharged in good condition 12-20-26.

Case 24. M. L., colored, age 40 years, multipara, admitted to St. Philip Hospital 12-31-26 in convulsions. Blood pressure was 190/120. Urine contained abundance of albumin, hyaline and granular casts. She was given 20 c.c. of magnesium sulphate (10 per cent solution) intravenously after her second convulsion in the hospital. She had one convulsion $\frac{1}{2}$ hour afterwards. Other treatment consisted of morphin .016 gm. on admission and q. 4 hours p.r.n., tincture digitalis and water (1,200 c.c.) through nasal tube q. 8 hours, bromide and chloral per rectum, and high colonic irrigations. The patient delivered herself of a still-born infant. She left the hospital in fair condition.

Case 25. M. J., colored, age 35 years, multipara, admitted to St. Philip Hospital 2-5-27 with headache and visual disturbances. She

had convulsions at 3 previous deliveries. Blood pressure was 190/130. Urine contained hyaline and granular casts and albumin. Labor was induced and there was a breech delivery of a premature living male. Immediately after delivery the patient had one convulsion and was given 20 c.c. of a 10 per cent magnesium sulphate solution intravenously. Other treatment consisted of morphin chloral and bromide, tincture digitalis and colonic irrigations. Both patients were discharged in good condition 2-23-26.

Case 26. Mrs. M. W., age 17, I-para, admitted to the Memorial Hospital 2-8-27 in convulsions. Blood pressure was 150/100. Urine contained hyaline and granular casts and albumin. She was given 20 c.c. of 10 per cent magnesium sulphate solution intravenously after the first convulsion in the hospital. She had no more convulsions for 6 hours. Then in the next 24 hours, she had 5 convulsions. She was delivered with forceps 30 hours after admission. Other treatment consisted of morphin, chloral hydrate, sodium bromide, tincture digitalis, gastric lavage, castor oil, water by nasal tube and colonic irrigations. Both patients discharged 2-28-27.

Case 27. R. J., colored, age 17, I-para, admitted to St. Philip Hospital 2-26-27 in convulsions. Blood pressure was 200/90. Urine contained albumin, hyaline and granular casts. After her 4th convulsion in the hospital, she was given 20 c.c. of 10 per cent solution of magnesium sulphate intravenously. There were no more convulsions. The patient delivered herself of a live male child 30 hours after admission. Other treatment consisted of morphin, .022 gm. on admission, tincture digitalis, castor oil, water by nasal tube, bromide and chloral and high colonic irrigations. Both patients were discharged in good condition 3-12-27.

Case 28. Mrs. T. R., age 20, I-para, admitted to the Memorial Hospital 3-6-27 in convulsions. Blood pressure was 160/100. Urine contained albumin, hyaline and granular casts. Ten c.c. of a 10 per cent solution of magnesium sulphate were given intravenously. A bag was then inserted. In the next 5 hours patient had 5 convulsions. The magnesium sulphate was repeated in the same dosage. There were 3 more convulsions in the next $\frac{1}{2}$ hour. The patient delivered herself of a still-born infant and there were no more convulsions. Other

treatment consisted of morphin, chloral hydrate, sodium bromide and digitalone. Patient was discharged in good condition 3-15-27.

Case 29. Mrs. M. B., age 23, I-para, admitted to the Memorial Hospital 4-3-27. She had been having post-partum convulsions for 12 hours before admission, and continued having them until 20 c.c. of a 10 per cent magnesium sulphate solution was given intravenously. Blood pressure was 170/120. Urine contained abundance of albumin, hyaline and granular casts. Other treatment consisted of 300 c.c. of 10 per cent glucose solution intravenously, morphin, sodium bromide, chloral hydrate and colonic irrigations. She was discharged in fair condition 4-7-27.

Case 30. Mrs. E. L., age 29, I-para, admitted to the Memorial Hospital 4-29-27 with the history of headache, edema and visual disturbances. Three days after admission she had a convulsion. Blood pressure was 180/112. Urine contained albumin, hyaline and granular casts. Treatment consisted of venesection on admission and high colonic irrigations. When she had the convulsion, she was given morphin, sodium bromide, chloral hydrate and tincture digitalis. A bag was then inserted and the patient delivered herself of a premature infant that died on the second day. The mother was discharged in good condition.

Case 31. C. M., colored, age 17, I-para, admitted to St. Philip Hospital 4-13-27 after her 7th convulsion. Forceps had failed in her home. The patient had 2 more convulsions while the magnesium sulphate was being prepared. She was given 20 c.c. of a 10 per cent solution intravenously. The patient had her 11th convulsion as she was being put on the table. The head, greatly moulded, was in a transverse position and delivered with Kielland forceps without an anesthetic. She had her 12th convulsion as she was being put to bed. Her convalescence was febrile. Both patients were discharged in good condition 5-8-27.

Case 32. Mrs. P. R., age 24, I-para, admitted to the Memorial Hospital 6-1-27 in labor. Blood pressure was 180/120. Urine contained an abundance of albumin, hyaline and granular casts. She had one convulsion before she delivered herself of a normal male baby, none afterwards. Treatment consisted of morphin, sodium bromide, chloral hydrate, tincture digitalis and high colonic irrigations.

Both patients discharged in good condition 6-15-27.

Case 33. Mrs. P. H., age 32, multipara, admitted to the Memorial Hospital 6-9-27, having post-partum convulsions. Patient had one convulsion after entering the hospital. Blood pressure was 130/90. Urine contained an abundance of albumin, hyaline and granular casts. Treatment consisted of 20 c.c. of a 10 per cent solution of magnesium sulphate intravenously, morphin, bromide and chloral, high colonic irrigations, water and tincture digitalis by nasal tube. Discharged in good condition 6-15-27.

Case 34. Mrs. P. I. C., age 24, I-para, admitted to Johnston-Willis Hospital 4-23-25 with a severe headache, marked albuminuria and a systolic blood pressure of 205. She had her 1st convulsion as she was being put to bed. The perineum was bulging. She was anesthetized with ethylene and delivered with low forceps. The patient had 2 post-partum convulsions. Treatment consisted of morphin .016 gm. (3 doses). Between the 2d and 3d convulsion, she was given 6 c.c. tincture digitalis, .65 gm. each of bromide and chloral, and a liter of water through a nasal tube. After her 3d convulsion, she was given 20 c.c. of a 10 per cent solution of magnesium sulphate intravenously. Within an hour her mind was perfectly clear and she wanted something to eat. The baby died in a few hours. The mother made an uneventful recovery and left the hospital in good condition 4-30-25.

Case 35. Mrs. C. T. A., age 22, I-para, was admitted to Johnston-Willis Hospital 6-13-25 having post-partum convulsions. She entered the hospital after her 7th convulsion. Blood pressure was 135/90. Urine contained a quantity of albumin. The patient was given .016 gm. of morphine on admission and 20 c.c. of a 10 per cent solution of magnesium sulphate. She had no more convulsions, her mind cleared up rapidly and she returned home to her baby 24 hours later.

Case 36. Mrs. C., age 38, VI-para, admitted to the Retreat for the Sick 9-6-25, on account of ablatio placenta with extreme toxemia with practically no vision, and blood pressure 150/110. Urine boiled almost solid but contained no casts. The amniotic sac was ruptured and the cervix and vagina were packed with gauze. The patient delivered herself of a macerated fetus. There was anuria for 30 hours after delivery. On the 6th day post-partum, she had

2 convulsions within $\frac{1}{2}$ hour. She was given 20 c.c. of 10 per cent solution of magnesium sulphate. There were no more convulsions. The patient left the hospital with considerable impairment of vision 9-20-25.

Case 37. Mrs. C. L. W., age 19, I-para, admitted to Johnston-Willis Hospital 9-7-25, on account of toxemia of pregnancy. Urine showed albumin and many granular casts. Cesarean section was done by Dr. Johns under ethylene. Patient had a post-partum convulsion, and was given 20 c.c. of 10 per cent solution of magnesium sulphate. She immediately regained consciousness and asked for water. There were no further complications. Both mother and child left the hospital in good condition 9-26-25.

Case 38. Mrs. C. P., age 23, I-para, admitted to the Retreat for the Sick 10-1-25 on account of toxemia of pregnancy. Blood pressure was 200/140. Urine boiled almost solid. The vagina was packed with gauze. Early the next morning, she had 2 convulsions. She was given .016 gm. of morphin and an intravenous injection of 20 c.c. of a 10 per cent solution of magnesium sulphate. Four hours later she had her 3d convulsion, and 9 hours later, her 4th convulsion. The magnesium sulphate was repeated in a 15 c.c. dose. There was now considerable pulmonary edema. Patient was bled 800 c.c. A 4082 gm. still-born baby was delivered with forceps without an anesthetic. Recovery was uneventful and the patient left the hospital 10-14-25.

Case 39. Mrs. R. K. G., age 25, I-para, admitted to the Johnston-Willis Hospital 12-13-25. Urine showed a distinct trace of albumin but no casts. She had 2 convulsions after entering the hospital. Patient was given 20 c.c. of 10 per cent magnesium sulphate solution intravenously and was delivered with low forceps. Eight hours after delivery she was given 1 ampule of pituitrin on account of a rather free flow and immediately had a severe convulsion. In addition to the magnesium sulphate, she was given .032 gm. of morphin, digifolin .098 gm. q. 4 hours, sodium bromide and chloral hydrate, each .65 gm., at bedtime for several nights. Both patients were discharged in good condition 12-24-25.

Case 40. Mrs. C. E. F., age 29, VIII-para, was sent into the Johnston-Willis Hospital 3-3-26 on account of marked albuminuria, headache and blind spells. Blood pressure was

220/140. She had her 1st convulsion in the elevator. She had already been given .016 gm. of morphin and a dose of sodium bromide. She was given another .016 gm. of morphin, 3.75 c.c. tincture digitalis by mouth and 7.5 c.c. paraldehyde by bowel. One and a half hours later, she had her 2d convulsion. She was then given 15 c.c. of 10 per cent magnesium sulphate solution intravenously. Twenty minutes later, the patient's mind was much clearer and she said she could see better. She felt as if she were burning up and could not get enough water. There were no more convulsions. The patient delivered herself the next day. Both patients left the hospital in good condition 3-16-26.

Case 41. E. H., age 17, unmarried. I-para, admitted to the Spring Street Home 4-11-26. For 3 weeks before she was confined, her systolic blood pressure was 160 in spite of rest in bed, a low protein diet and frequent purgations with castor oil. On May 30, she began to bleed from vagina and was packed with gauze and given 1 gm. of quinine. Ten hours later the packing was removed and a No. 5 bag was inserted under light ether anesthesia. Three hours later she had 4 convulsions in rapid succession. She was given 15 c.c. of a 10 per cent solution of magnesium sulphate intravenously. There were no more convulsions. The bag was out of the cervix in $9\frac{1}{2}$ hours. It was deflated and removed. There was no bleeding and the patient was allowed to deliver herself, which she did in 4 hours. The baby was still-born. In addition to the magnesium sulphate, the patient received .024 gm. of morphin and .001 gm. of hyoscin. The mother made an uneventful recovery and was out of bed on the 8th day.

Case 42. Mrs. R. K. P., age 19, I-para, admitted to Johnston-Willis Hospital 7-9-26 for toxemia of pregnancy. Urine contained a heavy trace of albumin and a few granular casts. A bag was inserted and the patient was delivered by version. She had one ante-partum and one post-partum convulsion. Twenty c.c. of a 10 per cent solution of magnesium sulphate was then given. Both patients were discharged in good condition 7-18-26.

Case 43. Mrs. M. R. S., age 18, I-para, admitted to Johnston-Willis Hospital 9-6-26. Her physician saw her in a convulsion, gave her .016 gm. of morphin and 2.6 gm. of sodium bromide and sent her into the hospital. On

admission her blood pressure was 170/142. There was extreme dimness of vision. Urine showed an abundance of albumin, hyaline and granular casts. She was given fruit juices, water and sodium bromide. Two days later when the urine began to clear up she was delivered of a premature boy (1701 gm.) by bag and forceps under sacral analgesia. The baby lived 6 hours. The mother was discharged in good condition 9-16-26.

Case 44. Mrs. G. H. J., age 36, admitted to Johnston-Willis Hospital 3-16-27 in convulsions. Blood pressure was 195/160. Urine contained an abundance of albumin, hyaline and granular casts. There was marked pulmonary edema. Patient was bled 400 c.c. and 20 c.c. of magnesium sulphate (10 per cent solution) were given intravenously. There were no further convulsions. Other treatment consisted of morphin, bromides and chloral. Two days later she delivered herself spontaneously of a 5½ months' fetus. She was discharged 4-14-27.

Case 45. Mrs. H. D. M., age 24, I-para, admitted to Sheltering Arms Hospital 4-9-27, having slight labor pains. Seven hours after admission, she had a convulsion. She was given .016 gm. morphin and a colonic irrigation. While this was being done, she had a second convulsion. After her 3d convulsion she was given 20 c.c. of a 10 per cent solution of magnesium sulphate intravenously. Tincture digitalis 7.5 c.c., and magnesium sulphate 31 gm., were given through a stomach tube. Patient had her 4th convulsion 2½ hours later, and was given 15 c.c. of a 10 per cent solution intravenously. There were no more convulsions. Ten hours later the patient was delivered under sacral analgesia with forceps on frank breech and the after-coming head. Other treatment consisted of forcing fluids. Both patients left the hospital in good condition 4-23-27.

Case 46. Mrs. L. F., age 17, I-para, admitted to the Sheltering Arms Hospital 5-2-27, with a blood pressure of 180/104 and loss of vision. Urine showed heavy trace of albumin, no casts. The next day, a Voorhees' bag was introduced; 18 hours later she had a convulsion. She was given 20 c.c. of a 10 per cent solution of magnesium sulphate intravenously. A premature male infant was delivered with forceps under rectal analgesia four hours later. Immediately after delivery, she had her sec-

ond convulsion. She was given 10 c.c. of 10 per cent solution of magnesium sulphate intramuscularly. Five hours later she had her 3d convulsion. She was given 10 c.c. of 20 per cent solution of magnesium sulphate intramuscularly. Other treatment was an initial dose of .016 gm. morphin, with a little bromide and chloral for 2 days after delivery. Both patients left the hospital in good condition 5-18-27.

In addition to the 46 eclamptics, two other patients were treated with intravenous magnesium sulphate, as follows:

(a) M. J., colored, 56 years of age, a multipara, was admitted to the obstetrical service of St. Philip Hospital unconscious and in convulsions. Blood pressure was 180/110. Urine contained albumin, and hyaline and granular casts. There was an abdominal tumor that corresponded in size to a 5 months' pregnant uterus. She had 4 convulsions in the first four hours after admission. She was given 20 c.c. of a 10 per cent magnesium sulphate solution. In three hours she had another convulsion and was given 10 c.c. She had 2 convulsions in the next twenty minutes. There were no more convulsions. Other treatment consisted of .016 gm. of morphin on admission, tincture of digitalis, 1,000 c.c. of water every eight hours through a nasal tube until patient was thoroughly conscious, and bromides and chloral each night. The patient was discharged 9-20-26 with a diagnosis of chronic nephritis and uterine fibroid.

(b) L. G., 25 years of age, I-para, entered St. Philip Hospital 7-5-25 with a blood pressure of 150/80. She had been in labor since July 2, and her membranes were ruptured artificially 7 hours before she entered the hospital. The patient was delivered of a normal male infant by version. Her temperature was 102 on the day of admission and gradually rose to 105.4. The patient became maniacal, with pronounced muscular twitchings, and was kept in bed with difficulty. Various sedatives, morphin, hyoscin, sodium bromide, chloral hydrate, paraldehyde, luminal and magnesium sulphate (20 c.c. of 10 per cent solution) were tried with varying success. The patient died 7-12-25.

MATERNAL RESULTS

Thirty-six of the 46 eclamptics were treated with magnesium sulphate. Twenty-six re-

ceived a single intravenous injection; six (cases 4, 6, 22, 28, 38, 45) two intravenous injections, and two (cases 16 and 17) three intravenous injections. To two (cases 12 and 46) the magnesium sulphate was given intramuscularly. With the case of chronic nephritis with convulsions and the one with puerperal sepsis with pronounced muscular twitchings, described above, there are 38 cases that have been treated with magnesium sulphate.

At first, the solution was made up from *chemically pure* magnesium sulphate and sterilized in the hospital. Now that a suitable solution is readily available in ampules, this is no longer necessary.

There have been no untoward effects. The only maternal death was clearly due to sepsis contracted before entering the hospital. There were no maternal deaths among the 36 eclampsics treated with magnesium sulphate. In the 10 cases of eclampsia not treated with magnesium sulphate, there were two maternal deaths.

INFANT MORTALITY

Six mothers were delivered before entering the hospital and there is no data concerning the infant. In the forty cases in which the outcome of the baby is known, there were 41 babies. Twenty-four were born alive, with 5 neonatal deaths, and 17 were still-born, a fetal mortality of 53.6 per cent. The fetal mortality in the group that was treated with magnesium sulphate was 45.1 per cent. The problem of infant mortality is an involved one, and it is difficult to properly evaluate the different factors implicated, i. e., prematurity, toxemia and treatment. It may be significant that four of the five babies who were born alive but died in the first few days, were born to the ten mothers for the control of whose convulsions reliance was placed in morphin and other sedatives.

CONCLUSIONS

Magnesium sulphate given intravenously or intramuscularly is a valuable agent for the control of convulsions in eclampsia. It markedly shortens the period of coma. It decreases maternal mortality from eclampsia and to a less extent the fetal mortality.

Since the paper was read two cases of eclampsia have been treated at the Hospital Division of the Medical College of Virginia (cases 32 and 33) and since the paper was re-

written for publication, there have been two more cases not included in the paper. The first of these, an 18-year-old colored primipara, was admitted to St. Philip Hospital, 6-17-27, after her third convulsion. The convulsion was controlled with one injection of the usual dose of magnesium sulphate. She delivered herself of twins, the second of which was still-born. The second (Mrs. B. H., Vi-para, age 36 years) was admitted to the Memorial Hospital, 6-21-27, on account of convulsions. There were no convulsions after admission. Both mother and child lived.

Medical Arts Building.

THE CONTROL OF TUBERCULOSIS IN THE NEGRO.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

I am indeed very glad to accept the invitation of your Program Committee to address this meeting for I have for several years been noting a growing Public Health Conscience in our Negro citizens. This is not only evident among the principals and teachers in our colored schools, who are making every effort to protect their pupils from contagion and to improve their general health, but it has also spread to the General Public who are now co-operating as they have never done before. Indeed I feel that in carrying out a health measure in the schools I can certainly count on the co-operation of the colored people to be at least as good as that of the white people and often find that they work with us better. As tuberculosis still ranks first among the Captains of the Men of Death when dealing with the Negro Race and I have done more work on this problem than on any other, it is natural that I choose as my subject the Control of Tuberculosis in the Negro. At the same time it will not be possible for me to treat this subject without going somewhat into the general field of tuberculosis, of which it is merely a part.

It will first be necessary to give a short review of some of the recent work done in regard to the transmission of tuberculosis, for we have radically changed our ideas in regard to this and have not yet reached a full and satisfactory conception of the whole problem. After we had learned that tuberculosis was not inherited but that the germ was passed directly or indirectly from the sick to the well, we grouped it along with other infectious diseases, that is we thought that after a person has taken these germs into his body the active disease would rather promptly develop. Further pathological studies, especially on people who had died from other diseases, showed a great amount of infection with tuberculosis which had either been conquered or which was

*Read before the Old Dominion Medical Society, June, 1927.

in a latent condition. Then the general use of the tuberculin skin reaction showed first that new born children were not infected and second that there was a general increase in infection throughout childhood, while almost the whole of the city population gave a positive skin reaction at the end of the second decade of life, though only a small percentage of these ever develop the active disease.

The X-ray pictures further showed a certain amount of infection in many children and adults who had been in close contact with tuberculosis cases, but who did not clinically have any symptoms and who did not present signs on physical examination. These are the so-called latent cases. To sum up these general findings, we now know that most city children (and most country ones too though not in quite so large a proportion) get infected with tuberculosis, but that the great majority hold this infection in check and never present symptoms. It is taught by many of our authorities that practically all infection with tuberculosis thus occurs in childhood, but that the children take care of it until other things which lower the vitality of the body cause this early infection to become active and produce the well known symptoms of the disease. Recent work done by Opie has thrown considerable doubt in regard to this. Along with other workers in the Phipps Institute in Philadelphia, he has been making thorough studies of families in which there have been cases of open tuberculosis. These studies not only include a physical examination but an X-ray examination and a tuberculin test of every member of the family, done repeatedly over a number of years. He found that practically all people, whether children or grown people, in the house with an open case of tuberculosis gave the skin reaction and showed some X-ray signs of latent tuberculosis. He found that 50 per cent of the consorts of these open cases showed either the latent or active disease, though in the larger number of cases it was latent. This, as I have already stated, was absolutely contrary to the teachings of the last ten years. It shows that the early infection of childhood does not prevent reinfection from without; indeed, Opie believes that though the early infection gives a certain amount of resistance, it does not prevent reinfection which is usually necessary to produce active tuberculosis. He does not maintain that this is the

only way that active tuberculosis develops but he does believe that it is much more usual than the simple reactivation of an old latent focus.

In laboratory work done on susceptible animals it was found that there are really two kinds of tuberculosis. The first kind occurs in the animals in which virulent bacilli have been injected. These animals have acute tuberculosis under which they promptly succumb and to which they show little if any resistance. If, however, the animals are first given a small dose of attenuated human bacilli they develop a certain amount of resistance. If then the same dose of virulent bacilli is administered the resulting disease runs an absolutely different course and we have the picture presented by chronic consumption in adult human beings.

This difference is also seen in mankind. When babies have taken in a comparatively large number of virulent germs, they react in the same way that the normal laboratory animal reacts and develop acute generalized tuberculosis to which they show little or no resistance. These are really cases of acute infectious disease with a short period of incubation. And you can be sure that such cases have been infected by close contact with an open case of tuberculosis, generally in a parent. This is, however, not necessary, as I well remember a case of baby who developed meningeal tuberculosis whose source could not be traced until we examined an uncle who had constantly played with the child, and found that he had advanced tuberculosis. The same thing can be produced by the nurse or by the mid-wife, as in the celebrated case of the tuberculous mid-wife who had the habit of inflating the lungs of new-born children by blowing into their mouths, and in this way produced active tuberculosis in ten babies. On the other hand the ordinary case of consumption, of what we now call the adult type, has had an early mild infection and gotten up sufficient resistance to react against a further infection and to produce scar tissue by which the body resists in the chronic form of the disease. This corresponds to the tuberculosis in vaccinated animals.

Following these discoveries it is usual to divide the different forms of tuberculosis into three classes which depend on the resistance of the body and the amount and virulence of the infecting agent. In acute tuberculosis we have an acute infectious disease to which the body

shows very little resistance. This infection gets into the blood and bacilli are carried to different parts of the body where local tubercles develop. The commonest type is the chronic form, formerly called consumption, which is characterized by the formation of scar tissue and the gradual spreading of the process, with the formation of cavities in advanced cases. In these cases the body has gotten up a considerable amount of resistance and can with proper treatment frequently conquer the disease and return to normal life and duty. The prognosis in such a case depends on the extent of the disease and on the amount of body resistance. If we take two cases with apparently the same amount of involvement, the case, that has lasted the longer, thus showing greater resistance, has the better chance of getting well. Then we have the juvenile type, in this condition the child's body has developed enough resistance to hold back the infection and though we have enlarged bronchial glands and some possible extension in the lungs, the case does not tend to progress further and has none of the typical symptoms of the adult disease. When these children are taken care of, are kept from getting extra infection from without, they should not develop active lung tuberculosis. They have, however, within them living tuberculosis germs, which they are for the time controlling but to which lowered bodily strength or further massive infections may add enough fuel to rekindle the dormant flame. To these three classes Opie adds latent tuberculosis, which means tuberculosis in the upper part of the lung tissue which can be demonstrated by X-ray picture and is found after death from other causes, but which is not active enough to produce symptoms or signs which can be ordinarily detected with the stethoscope. In these cases the resistance is very great and it takes a large amount of extra infection or a great reduction of bodily strength from other causes to allow the disease to develop. Between these different classes there are various modifications which again depend upon the amount of infection and the amount of resistance of the body.

So far I have spoken of tuberculosis affecting man and experimental animals but have made no comparisons or special reference to tuberculosis in the Negro.

It is universally recognized that there is in

this country more tuberculosis among Negroes than among whites and that it is more fatal to them. Indeed, not so many years ago it was prophesied that tuberculosis would sooner or later settle the Negro Question by eliminating the Negro from the United States, for at that time tuberculosis seemed to be constantly increasing in the Negro Race. This last, however, is not true at the present time for the Negro tuberculosis death rate in Norfolk is now less than half what it was twenty years ago. On the other hand, the white tuberculosis death rate has decreased twice as fast as the Negro rate and is now only one-eighth of the latter. Indeed our Negro rate is still considerably higher than what our white rate was twenty years ago. Therefore, we must concede that while tuberculosis in the Negro is still a tremendous Public Health Problem, it has been so greatly lessened that it is not half as serious in Norfolk as it was twenty years ago. This is very encouraging and must not be forgotten, for it shows that our problem is not a hopeless one. At the same time, when we remember that tuberculosis is now eight times more serious for the Negro than for the white man in Norfolk, it takes real courage to face the long fight which lies before us.

Let us look at some differences between the behaviour of tuberculosis in the two races and try to see what these differences mean. I have worked over the histories of our Clinic patients who died in the last two years and the first point that I noted was that the average duration of life in these fatal cases from the first history of symptoms was only ten months with the Negro, while the average fatal white case lasted four years. I have also noted from physical and X-ray examination that the white case apparently forms much more scar tissue and that his lesions calcify much more often than in a colored case. We have seen earlier in this paper that these are the chief methods by which a resisting animal fights tuberculosis. So it is plain to me that the Negro race as a whole has not gotten up the same amount of resistance to tuberculosis as the white race, probably because the latter has been used to tuberculosis for centuries while the former has only come in contact with it for a few generations. We also find certain families who apparently have almost no resistance, who die quickly as if without even a struggle and in whom all therapeutic measures are useless. We

also find that the greatest tuberculosis mortality in the Negro occurs in the early twenties while that in the white man comes ten years later. Indeed we found in the series of fatal cases, already referred to, that 44 per cent died before twenty, showing that the majority of these cases started their active disease before they were of age.

We have also found that the permanent results obtained from treatment in the colored sanatorium did not compare with those obtained in the white sanatoria. This does not mean that Piedmont Sanatorium, especially under Dr. Carter, did not give as good treatment as the white sanatoria, for the colored patients would improve in every way, be sent home with good prognoses and then many of them would speedily go down and out in spite of continuing the cure. This seems to me, again, nothing more than another evidence of lack of resistance in the colored race.

With this marked lack of resistance our task is indeed a tremendous one, yet we know the tuberculosis death rate in the Negro is decreasing. We know that he will gladly take treatment and follow it as well as many of the poorer white people, and we know that some cases are cured and stay cured for years. What is the difference that makes the death rate eight times as high in one race as in another in the same city? Some maintain that it is due to malnutrition, yet a colored child for the height and age weighs more and has a better posture than a white child. Some say that on account of less frequent contact the colored man has not been able to build up the resistance of the white man and consequently the disease progresses faster. Though he certainly has less resistance, this does not seem to be due to less frequent contact in a city in which there are actually four times as many tuberculosis deaths among Negroes as among whites, though the latter are twice as numerous. This is also refuted by the fact that mulattoes have a greater resistance and live longer than the blacks and may even run a chronic course seen so often in white but so seldom in colored cases. This has been observed and reported by Carter at Piedmont Sanatorium and at our Norfolk Clinic. The lack of resistance seems to be racial and due to a relatively shorter period of contact with the disease on the part of a race only accustomed for a few generations to civilized life. This, of course,

is magnified by the Negro's not knowing how to live a healthful life in a city, or for that matter in houses in the country, and also his not having the means to obtain adequate, healthy housing.

It has been found that babies, like experimental animals which have never been inoculated, have less resistance to tuberculosis than at any other period of life but they will after a mild infection get up so much resistance that the great majority of children are able to throw off the infection of tuberculosis without even having symptoms. Later on in early adult life, or even just before that period, some of this immunity is lost and if the infection is great enough the resistance will be overcome and the active disease will follow. This is relatively true in the Negro as in other races, only in childhood the resistance does not last so long and in certain families is never apparently very great. In these families we find cases of adult type tuberculosis in little children, many of whom show no resistance at all. But other cases of similar age show comparatively great resistance and the adult tuberculosis may be overcome and the child get well, in spite of cavity formation, if he is given any chance at all.

Childhood then is the time when resistance to tuberculosis is greatest and we must do all that is possible to build up the resistance so that it will persist through adult life. While this is true of white children it is still more important in colored children, for it is apparently the only period in life when the resistance to tuberculosis approaches that of the white man. It is then most important to look out for the health of the children, to see that defects such as tonsils and other chronic infections are removed and most important of all to see that their resistance is not overwhelmed by continually taking in fresh germs from active cases in the same house.

In Norfolk we are having splendid results with the colored children we are taking care of in our Open Air School Room. These results compare favorably with the results obtained from sanatorium treatment when looking back over the comparatively short period this class has been in existence. The only trouble here is that we can only provide for between twenty and twenty-five children, while ten times that number really need this care.

It is, however, just as important to protect

the children from massive re-infection as it is to build up their bodily strength. It is here that we in Virginia are not doing all that we should, for I have only been able to find 200 beds in the State of Virginia for colored people with tuberculosis, when we do not take into account those at the Insane Hospital and the Penitentiary Farm. We should have at least five times as many beds for colored patients to allow us to care for the advanced patient who is now spreading infection among the children. On the other hand it sometimes looks as if we were not taking advantage of even the small number of beds now at our disposal for I often get cases at my Clinic who should have been sent to Piedmont months before. These cases have been treated at their homes by physicians so long that all chance of recovery has been lost and all the patients' money exhausted and in the meanwhile the children of the household had been exposed to this continued source of infection from patients, who often did not take proper care of their sputum. The colored patient must be gotten to the sanatorium early if any hope of recovery can be held out. But I feel that the protection of his family from infection is an even more important Public Health Problem, for he is one but they may be many.

Chicago has passed a law requiring the removal of Open Cases (i. e. cases with bacilli in the sputum) from contact with young people. To bring this about the patient must be put in a hospital or the children sent away from home. We must first get enough hospitals to allow such a segregation to be at least partially carried out and then we must educate the doctors and the people to the danger of the Open Cases in the house. We seldom find among Negroes the old chronic case which is such a source of infection to white people. So it is the active colored case which is the source of the trouble and he is the kind of case who needs institutional care for his good as well as for the good of his household.

If I may again repeat, the great difficulty in fighting tuberculosis in the Negro is his racial susceptibility or lack of resistance; on account of this the disease progresses more rapidly and he is not able to combat it and throw it off in the way the white man does under proper treatment. It is therefore necessary for us to use our best efforts at a time when his resistance is greatest and when the disease has not yet

arrived at an incurable stage or better still before symptoms of lung involvement have appeared. The only period in which these two conditions occur in the Negro is in childhood. It is therefore in the schools that we should seek our cases as well as in all families in which an Open Case has been discovered. All delicate children should be examined, especially those who have afternoon fever and cough or who are missing time from school on account of sickness. And right here let me warn you not to depend too much on the Height-Weight Tables for these were made for white children and the colored child naturally weighs more and has better posture than the white child of the same age. So do not decide that a child is well, because he is up to normal weight, but examine him carefully if other symptoms make you suspect him. Then do your best to correct his defects, improve his surroundings, and give him plenty of good food, fresh air, and rest (the last being the most important). And while you are doing this try to keep him from extra infection, by getting Open Cases out of the house and into sanatoria or hospitals. If the last be impossible see that the Open Cases take proper precaution to prevent the spread of infection from their sputum, for a careful consumptive need not be dangerous. We have tried this in our Open Air Class for here, with individual care, proper food and rest, all these children have regularly gained weight, strength and class standing and better still have stayed well when promoted to Junior High School.

My plan for combating tuberculosis in the Negro Race can then be summarized in a few words TAKE CARE OF THE CHILD. Protect him in his home from massive infection by sending Open Cases to sanatoria or hospitals. Build up his health and resistance by correcting his defects (such as tonsils), and also by teaching him how to live properly and make use of God's remedies, fresh air, good food, and rest. If he is delicate and more especially if he has been in close contact with an Open Case, watch him carefully, examine him at regular intervals, and be ready to put him to bed either at home or in the Sanatorium at the first sign of pulmonary activity. I know that these measures will produce results, for I have tried them. And now I am begging you doctors to try the same plan, "Take care of the child", protect him from

infection, and build him up so that he will be strong enough to resist tuberculosis, the great enemy of the Negro Race, and be able to grow up into a healthy, useful, God-fearing citizen.

Bank of Commerce Building.

GOITER—CLASSIFICATION AND MANAGEMENT.*

By RICHARD O. ROGERS, M. D., Bluefield, W. Va.

As a positive requisite for a full appreciation of thyroid disease, of which goiter is the main expression, it is necessary to review in an elementary way the importance of the thyroid gland, its histologic structure, and physiologic function. Shaped roughly like a butterfly and occupying a position in the neck astride the trachea, the normal gland weighs but an ounce and a half. Its intimate connection with the circulating blood is evidenced by the fact that it is connected by four substantial branches with large blood vessel trunks of the neck. The circulation of blood through the gland is tremendous and is estimated to be twenty-eight times the circulation of the head and thirty-four times the circulation of the brain.

The thyroid gland is a ductless gland and its structure consists essentially of vesicles filled with colloid and lined with cuboidal or low columnar epithelium. This colloid substance is rich in iodine and undoubtedly plays an important part in the elaboration of a specific hormone which E. C. Kendall in 1914 isolated as a chemical compound and named thyroxin. This specific hormone, kept at an even level in the tissues of the body in health, preserves an even rate of metabolism and, other things favorable, governs and maintains normal physical and intellectual development. No other function of the thyroid gland is known except this elaboration and supply to the circulation of thyroxin in amounts which are normal needs of the individual. In a condition where there is no supply whatever, as exemplified typically in the cretin, there is simple automatic vegetative life and the subject is a mere "human plant". The reverse condition of an excessive supply of thyroxin finds expression in the various hyperthyroid states in which there is evidence of a universal cell over-activity.

In the pathological conditions developing in

the thyroid and constituting goiter in its various forms, certain departures from the normal histologic picture occur and consist of changes in vascularity, alteration in the amount of colloid, the development of new acini, and cell hypertrophy and hyperplasia, or a combination of one or more of these changes. These changes are fundamental in thyroid pathology and account for morbid physiology and explain largely the resulting clinical pictures of disease.

Although during the past decade signal and outstanding contributions have been made to the study of the thyroid gland and its diseases, contributing in this way materially to the solution of the goiter problem, the fact has to be conceded that there is much yet to be learned, and in reconciling various divergent views and explaining apparently conflicting facts, there is a great deal of confusion. A principal difficulty which has been responsible most for a lack of understanding of the problem has been a failure to recognize that there are several kinds of goiter and that the management of the morbid process, especially as it pertains to the important feature of iodine administration, must depend upon the type of goiter dealt with in the individual case. In this paper, therefore, the subject is approached on the elementary basis of a workable classification wherein clinical pathological correlation becomes possible and accepted methods of treatment follow as a logical sequence. The classification followed is that worked out by Henry S. Plummer of the Mayo Clinic and divides goiter into (1) Diffuse Colloid Goiter, (2) Adenomatous Goiter without Hyperthyroidism, (3) Adenomatous Goiter with Hyperthyroidism, and (4) Exophthalmic Goiter. Without altering this arrangement of types and at the same time differentiating the disease on the basis of known and unknown etiology, goiter may be further classified as (1) Endemic and (2) Exophthalmic. Endemic goiter includes diffuse colloid goiter and adenomatous goiter with and without hyperthyroidism, is geographic in its distribution, and whatever the contributing factors, infection or what not, the primary etiologic factor is iodine deficiency. Exophthalmic goiter has no such definite geographic distribution, and while the immediate source of the clinical picture must be attributed to change within the thyroid itself, the exciting cause is certainly not known.

*Read before the Clinch Valley Medical Society, at Norton, Va., April 29, 1927.

Diffuse Colloid Goiter. Under the designation of diffuse colloid goiter are included those symmetrical enlargements of the thyroid which are due to the storage of an abnormal amount of colloid in normal vesicles and in which there are no changes in the cellular structure of the gland. This type may be congenital and its occurrence in infancy and childhood is fairly common in families who have lived for many generations in those geographic areas where the disease is endemic. Rarely it may not become evident until the age of 25. The typical case in the United States is the diffuse symmetrical enlargement of the thyroid occurring so commonly in girls at the age of puberty. Its development is so usual, in fact, with the latter half of the second decade of life that adolescent goiter is a synonymous term. The condition progresses from three to five years, often with remissions, and then disappears gradually until it is barely palpable at the age of 25. The blood supply within the gland is not increased, but the superior thyroid arteries may be greatly increased in size, and most notable bruit and thrill may be present. In connection with such a developed colloid goiter, associated independently as it may be with a psychoneurosis or effort syndrome or other disordered action of the heart, it would be easy, without more thorough investigation, to arrive at a conclusion of exophthalmic goiter and advise thyroidectomy. Exophthalmic goiter does occur frequently at this age, but the error of confusing the two would hardly be pardonable, since basal metabolism is normal or minus in the one and greatly elevated in the other. Colloid or adolescent goiter never gives symptoms except often the worry over the mere presence of enlargement in the neck. Rarely there is pressure. It is practically never a surgical condition. Whatever may be contributing factors, we know that the primary etiology is iodine deficiency, and its occurrence in the newborn may be anticipated by feeding iodine to the expectant mother, and its development at puberty or earlier can be prevented by a normal iodine intake. In the case of the developed goiter the size of the thyroid may reduce rapidly and disappear entirely under iodine alone or combined with thyroid administration.

Adenomatous Goiter without Hyperthyroidism. For the sake of a logical sequence of events it may be assumed, and is usually con-

ceded, that in most instances adenomatous goiter has its beginning in colloid or adolescent goiter and is therefore a second stage of endemic goiter. Any enlargement of the thyroid thus persisting after the age of 20 may be assumed to contain adenomatous tissue regardless of whether or not such aggregations of tissue can be palpated as nodular masses. A definite nodular thyroid is certainly not the rule under the age of 30, and in the third decade we are aware that transition from the usual appearance of the symmetrical thyroid of a simple colloid goiter to that of the thyroid of adenoma is very slow and gradual. In the fourth decade, or on an average around the age of 35, and later in life there is clear differentiation in a large number of cases, and the popular conception of adenoma is presented in the definite nodular character of the thyroid. Its most familiar expression then is a well defined tumor constituting a true adenoma in which there is a definite limiting capsule. It must be kept in mind, nevertheless, that this is but a single phase of adenomatous goiter and that there must be included the pathological entity designated adenomatosis and consisting of aggregations of newly formed vesicles which are not limited by capsule and which may occur in a circumscribed area or which may be distributed widely throughout the gland. Obviously, in such a situation a nodular character of the thyroid may be extremely difficult or even impossible to make out. Whatever factors enter into the production of a true encapsulated tumor in one instance and an adenomatosis in another we may not concern ourselves; the life histories of both are alike and show the same tendency to cause hyperthyroidism. The dominant phase of the microscopic picture in both instances is the development of new vesicles. When these new vesicles are fully developed they show the same evidence of function as normal vesicles and cannot be distinguished from surrounding normal tissue. There is no true cell hypertrophy and hyperplasia. Everyone is familiar with the enormous size often encountered in goiters of the adenomatous type. Frequent secondary changes give rise to the unimportant designations of cystic, hemorrhagic, and calcareous goiter. In this type also an adenoma of appreciable size may lie behind the sternum or a clavicle and give no evidence of the enlargement of the thyroid gland itself.

The treatment of simple adenomatous goiter is purely surgical and aims at the removal of an unsightly tumor or the relief of certain symptoms which arise by reason of pressure on contiguous structures. Although the assertion brings up one of the contradictory and unexplained facts in the goiter subject, in adenomatous goiter there is iodine intolerance, and the definite indication for iodine therapy, ideally applied in colloid or adolescent goiter, does not obtain in the adenomatous thyroid, and iodine medication, either by oral administration or by local application, becomes a positive contra-indication and a fruitful source of activating an otherwise harmless thyroid. Of the fully developed adenomatous goiters coming under observation 25 per cent are hyperthyroid, and to preclude the development of this activated stage, with its crippling effects increasing with age, the practice of resorting to surgery for all definite adenomatous thyroids after the age of 30 is probably justifiable. The risk in simple adenoma obviously is practically nil.

Adenomatous Goiter with Hyperthyroidism. This type of goiter is commonly designated toxic adenoma and constitutes the activated stage of simple adenoma and the late expression of endemic goiter. No change in the size, contour, or consistency of the thyroid occurs to indicate a hyperthyroid state, and outwardly the physical character of the goiter is not different from that occurring in simple adenoma. The microscopic picture likewise is essentially the same with the exception that the adenomatous tissue shows evidence of moderate hyperplasia. Only 5 per cent of adenomatous thyroids with hyperfunction coming under observation at the Mayo Clinic are in patients under 30 years, and at the same clinic the observation is made that an average period of seventeen years intervenes between the time when a goiter is first noticed and when hyperthyroidism develops. It is evident, therefore, that toxic adenoma belongs well in middle life, approximately 78 per cent of the cases occurring after the age of 40.

In addition to the mere presence of thyroid enlargement, in toxic adenoma the more serious situation of a hyperthyroid state is a critical consideration. Even though the process is slow in developing, the adenomatous tissue once activated shows no tendency to return to a state of normal function, even with

supposedly all exciting cause removed. Early manifestations of the disease are tachycardia, moderate loss of weight in spite of an appetite which keeps above normal, and nervous phenomena which we commonly associate with nervous fatigue. Various degenerative changes, especially with reference to cardiovascular change and the development of the clinical entity of a "goiter heart", are late effects of disease rather than active expressions. The basal metabolic rate ranges from plus 30 to plus 50. In contradistinction to exophthalmic goiter, ocular symptoms, the tendency to crisis, and the peculiar nervous phenomena of that condition are absent.

The phenomena developing and constituting the clinical picture of toxic adenoma are undoubtedly dependent upon some condition which causes the thyroid to hyperfunction with a consequent elaboration of thyroxin in excess of normal requirement. What underlies this factor of activity is certainly one of the speculative problems of the goiter subject. We have already spoken of iodine intolerance, and to judge from the multitudinous articles appearing on the subject within the past few years and the furor raised by the universal supply of iodine in table salt and in some cases in municipal water supplies, the question of iodine easily dominates the discussion. That there is evidence sustaining the claim that the promiscuous use of iodine, either as a prophylactic measure or as a curative agent, has had harmful effects in activating simple adenomatous thyroids, there can be no question.

The treatment of true toxic adenoma is surgical in every instance. Preliminary intensive iodine therapy immediately before operation is not indicated as in exophthalmic goiter, but in certain instances where we have not been positive as to whether we were dealing with toxic adenoma or exophthalmic goiter we have given such patients iodine for a week or so and obtained in a fair proportion of the cases what we considered better operative risks. At the Mayo Clinic it is claimed that the mortality has been cut in half by discontinuing digitalis as a pre-operative measure in those cases with a fibrillating heart.

Exophthalmic Goiter. Although the clinical syndrome which we designate as exophthalmic goiter is an immediate expression of changes within the thyroid gland, the real exciting cause is unknown, and the condition is

distinctive and probably has no connection with endemic goiter. Locally, the thyroid may not be perceptibly enlarged, but usually there is moderate and symmetrical enlargement of the gland, and due to marked vascularity there is ordinarily definite bruit and thrill. Microscopically the picture is that of the most evident hypertrophy and hyperplasia. The disease may occur in the aged or in the very young, but generally it belongs to early life and develops at an earlier period than toxic adenoma, 60 per cent of a Mayo Clinic series occurring before the age of 40. Unlike toxic adenoma, the onset of which is gradual, exophthalmic goiter may develop with extreme suddenness and may follow an acute illness or a psychic shock. In the developed case the symptoms of tachycardia, tremor, loss of weight and increased appetite may be simply those of a hyperthyroid state and an abnormal supply of thyroxin. The fury of heart action is often such that is not observed in any other condition, and the loss of weight at the same time that the patient has a most ravenous appetite may be so extreme as to suggest the disease alone. The basal metabolic rate ranges between plus 50 and plus 70. Exophthalmus or a characteristic stare (observed in 65 per cent of the cases), the tendency to cerebral and gastro-intestinal crisis, and the peculiar nervous phenomena are never observed in toxic adenoma and are distinctive of exophthalmic goiter alone. The typically developed picture is so totally at variance, in fact, with what occurs in the ordinary hyperthyroid state, that Plummer draws the conclusion that in exophthalmic goiter an abnormal thyroxin is elaborated and that the clinical expression is that of dysfunction as well as hyperfunction of the thyroid.

In the management of exophthalmic goiter the subject of iodine again dominates the situation and proves once more the dictum of Crile that "the study of the thyroid begins and ends with iodine". As far back as there is any authentic record of goiter, iodine has been known to have some beneficial effect on the course of the disease. Kocher in the past generation recognized the fact, but whenever iodine was used the observation was made that some patients were made worse at the same time that others were benefited, and the profession accordingly was advised to be guarded in its use. The explanation of the observation

is to be found in the fact that toxic adenoma and exophthalmic goiter were treated as one and the same thing under the designation of toxic goiter. H. S. Plummer in his work of classifying diseases of the thyroid has shown that the two conditions are separate entities, and in 1922 demonstrated that iodine in what seemed unreasonable and prohibitive doses was of the utmost importance as an adjunct to surgery in goiter of the exophthalmic type. The immediate and universal adoption of this measure suggests an effectiveness which makes it one of the most outstanding accomplishments in the solution of the goiter problem.

The preparation of iodine used is ordinary Lugol's solution and the usual dose is ten drops administered three times a day. This is kept up for a period of from one to two weeks, sometimes longer, in the course of which the reduction in the pulse rate, the gain in weight, and general improvement is almost phenomenal. At the same time there is usually a marked drop in the basal metabolic rate. A patient going into crisis and extremely sick may require larger doses, and in the presence of intractable vomiting the iodine may have to be administered by bowel. The serious condition of the patient does not seem to effect the ultimate outcome. The average patient at the end of two weeks becomes a good operative risk, with none of the heretofore dreaded complications to anticipate. Withdrawal of the drug is followed in a week by a rise in the metabolic rate and a return in some degree of the former severity of the disease. For this reason it is imperative that administration be continued up to operation and persisted with well into convalescence.

It is a well known fact that the medical mortality in exophthalmic goiter has been considerable, death often occurring in a crisis or as a result of an infectious process developing during a crisis. Since the advent of intensive iodine administration this mortality has been reduced to practically nothing. In operative efforts formerly, ligations and two-stage operations were frequent. These are rarely necessary now, thus lessening pain and danger and economizing time and expense. Acute post-operative hyperthyroidism is no longer a serious complication and can be traced probably to an inadequate iodine supply immediately before operation. Occasionally improvement in the patient's symptoms is not spectacular,

but even in these cases the surgeon is surprised with the trifling reaction accompanying operation.

We have no proof that iodine alone is curative of exophthalmic goiter. In our own practice we have seen a few cases controlled for a long period of time where operation was refused or was not expedient. In certain post-operative cases where symptoms have recurred because of inadequate resection or because of some unknown cause, iodine is of undoubted benefit.

At a recent medical meeting where the subject of goiter was under consideration the statement was made by one of the most eminent goiter authorities in this country that a toxic goiter was as truly a surgical condition as acute appendicitis was surgical. The reference included, of course, both toxic adenoma and exophthalmic goiter. We are inclined to be in sympathy with the statement on the condition that the diagnosis is unquestioned. The condition, however, must take something away from the sweeping nature of the statement. In a full blown case of exophthalmic goiter and also in the case of a patient who has harbored a nodular goiter for years and who more recently has lost weight, is nervous, and who probably already has beginning degenerative cardiac change, recognition hardly constitutes an effort on the part of the doctor. A greater number of cases, either by reason of the short progress of disease or else on account of its mild course, are not so well differentiated and constitute some of the most baffling problems in diagnosis. Various nervous phenomena, tachycardia and loss of weight and strength should attract attention to thyroid disease, but it must be kept in mind that one or more of these symptoms may have abundant expression in an anxiety neurosis, effort syndrome, and numerous other conditions which we commonly designate as functional. With the advent of basal metabolism, superficially the problem seemed solved. Its importance is in no way underestimated, and the ability to read even with relative accuracy a basal metabolic rate represents one of the greatest factors in interpreting thyroid activity, but certainly in a case of disease of borderline dimension the evidence is not ordinarily conclusive. There are many elements of error, and to keep within a safe interpretation of reading we must allow for a fairly wide varia-

tion. It is the experience of every clinician that many such cases are seen where thyroid disease is suspected, but cannot be confirmed as a positive certainty. In this class of cases we think it is best to temporize and treat medically and be governed later by a clearer differentiation of disease. For the definitely hyperthyroid case, whether it be toxic adenoma or exophthalmic goiter, surgery offers by far the greatest prospect of cure and may be undertaken with the utmost confidence.

SURGERY IN DIABETES.

By J. W. DEVINE, M. D., Lynchburg, Va.

In reviewing the literature in diabetes one is struck with two salient features: first, the large number of diabetics requiring surgical treatment, and, second, the great reduction in the mortality in recent years, especially since the discovery of insulin. Joslin, in a recent paper, *Boston Medical and Surgical Journal*, January 27, 1927, says every third diabetic and possibly every other diabetic sometime in the course of his disease requires surgery; and Fitz, in a series of 385 diabetic patients consecutively treated at the Massachusetts General Hospital, found that 14 per cent required surgical treatment, and Joslin reports 903 cases in which 11 per cent required surgical aid.

A few years ago the hazard in these operations was almost prohibitive. Mortality ran as high as 30 per cent and 40 per cent. Compared with the report from the Mayo Clinic, October 1, 1921, to October 1, 1923, this latter comprised 327 operations, 141 of these being classed as major operations, with a mortality average from all operations of 1.2 per cent. The major operations averaged about 4 per cent. As Joslin says, "still the mortality in surgical diabetes is six times as great as the medical diabetic; he requires six times as much attention."

The regulation of the amount of sugar in the blood is probably controlled by four ductless glands: the suprarenal, the thyroid, pituitary and the pancreas. Diabetes is largely a penalty of obesity. Heredity, age, infection and a nervous element seem also causative factors, as we find it usually occurring in elderly, stout patients with lowered resistance. Phillips groups these cases as follows:

1. The cases in which glycosuria causes the surgical lesion.
2. Those cases in which the two are independent and do not influence each other.

3. The cases in which glycosuria exerts a baneful influence upon the other disease.

When operation is indicated in a diabetic, the urine should be rendered sugar free and the blood sugar should be brought to within normal range if possible, somewhere between 80 and 120 mg. to 100 c.c. blood. Here, again, I wish to point out, and have in other papers, the necessity of close co-operation between the internist, the pathologist and the surgeon. Very few surgeons are competent to prepare these cases for operation, and still less competent to undertake alone the after-care of these cases. This not only applies to diabetic cases, but, in my opinion, all surgical cases should be gone over by a competent internist and frequent consultations will be to the best interest of the patient.

Gangrene and infection, next to coma, are the most important complications. Morrison found it to be a contributory cause of death in 23 per cent of 775 fatal cases of diabetes in Boston during the years 1890 to 1913. The gangrene usually affects the extremities. Arterio-sclerosis is almost always present. This is seldom found in the young diabetic or cases of short duration. One of the most notable points is that, following amputation, a number of these patients have a marked sugar tolerance, some cases requiring small doses of insulin, others none at all. This must be especially watched following the operation, as the insulin may be given in an overdose. Reduce the dose as the sugar tolerance increases.

The gangrene usually attacks the foot or toes and the external appearance is very deceptive, the deeper tissues being involved to a much greater extent than appearances would indicate. Amputation is usually necessary and should be above the knee even though pulsation of the dorsalis pedis artery can be felt. The blood vessels are usually hard and the flaps will be poorly nourished and slough and secondary amputation will be necessary if high amputation is not done.

Thyroid Cases: The increased metabolism of hyperthyroidism is just as harmful to the diabetic as over-eating of food, and is even more apt to cause coma. The frequent occurrence of glycosuria in thyroid cases renders the accurate decision as to blood sugar imperative. During the year 1925, of the 700 patients operated for thyroid disease in the Lahey Clinic, 17 had a glycosuria. Follow-

ing operation, three cases were able to discontinue the use of insulin, and two were able to reduce the dose materially. At the Mayo clinic, 26 of 191 diabetics operated on were for thyroid disease.

Gall-Bladder Disease: Joslin reports 13 diabetics operated for gall-stones during 1922-1925; no deaths.

The mortality in diabetes depends upon three factors: surgical technique, choice of anesthetic and attention to the medical factor.

Surgical Technique: The operation should be done with all possible speed consistent with good work. The tissues are devitalized and should be very gently handled. Rigid asepsis and extreme care in accurate approximation of tissues should be observed. The slightest inversion of skin is slow in healing and invites infection. The flap in amputation should be longer than in the amputation in non-diabetics.

Anesthetics: Nitrous-oxide oxygen and spinal or local anaesthesia are those of choice.

Attention to the Medical Factor: This is most important, and refers to careful preparation and after-care by the associated internist and surgeon. This is the ideal method, but cannot always be carried out. Often these patients are brought to the hospital with an acute abdominal condition and the routine examination of the urine is the first intimation we have that the patient is a diabetic. The abdominal condition being urgent, we then have to operate in the face of acetone and sugar in the urine.

One of the cases I wish to report was of this type. Patient was a very large woman about 60 years of age, weighing much over two hundred pounds. Heart enlarged, mitral regurgitation with failing compensation, swelling of ankles and legs. She gave a history of having been treated for diabetes but had not of late followed instructions. Her present illness began two days before I saw her with sudden abdominal pain and vomiting. Pain was all over lower abdomen but most marked in right side. Abdomen distended and rigid; tenderness most marked in right side. Vaginal examination disclosed a fullness in posterior fornix but, because of her enormous size and tenderness, very little information could be elicited. Urine contained sugar abundantly; blood showed a high leucocyte count, and there

was blood sugar. Dr. F. M. Perrow who had treated her was consulted. Insulin was given before the operation.

Operation disclosed a large ovarian cyst with twisted pedicle. The cyst was gangrenous with circumscribed peritonitis. She reacted well following operation, and was closely watched by Dr. Perrow and myself. She did well following the operation until about the tenth day, when she had a heart attack, from which she recovered. The wound healed wonderfully, with temperature normal after third day, and with no vomiting or distention. Stitches were removed twelfth day, the drainage having been removed previously. She had another heart attack about three weeks after operation, and died.

Another case was amputation of the leg above the knee; patient, a man aged 39; recovery.

Double amputation above the knees was the third case—woman aged 64. I was associated with Dr. John W. Dillard in this case. She made an uneventful recovery. The amputations were done at about three months intervals.

A fourth case had infection in plantar surface of foot, extending to superficial fascia of leg. Incision from upper part of leg to knee and fascia removed. This patient also had a 4-plus Wassermann and 4-plus sugar. Recovered, wound healed.

The fifth case was one of double inguinal hernia, local anesthetic. Hernia could not be retained by truss and had to be reduced by physician on one occasion. Recovery uneventful.

A sixth case was amputation of leg above knee on male patient, aged 67. Recovery.

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X-RAYS IN DERMATOLOGY.

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Physically, the X-ray belongs to the group of light rays. Its wave length is 2 to 1/10 angstrom units, and even shorter wave lengths are obtained with modern high voltage machines. The shorter the wave length the greater the penetrability. Hence the effort to increase the penetrability and shorten the wave length by using higher and higher voltages. As the more penetrating rays are never used on the skin surface, a discussion of this subject is out of place here.

In dermatology we confine ourselves almost entirely to unfiltered rays. Once in a great while a case may require the use of 1 mm. of aluminum, this being a matter of experience and judgment. The voltage varies from 50,000 to 100,000, higher voltages being unnecessary in that the dose given with very high voltages will give unnecessary radiation to deeper structures. The milliamperage is from two to five.

According to the MacKee method, we must know and accurately measure four factors—spark gap, voltage, time, and focal skin distance. One skin unit is the amount of radiation that will just epilate the hairs of the scalp without an erythema, and without permanent loss of hair. In other words, it is the maximum of X-ray that can be administered to the skin of a healthy blond without causing an erythema. In my work, the following factors will give one unit and epilate a scalp very nicely, 4 ma., 9 in. fsd., 7½ in. sp. gap, 1 min. 15 sec. During the rest of this discussion we will speak in terms of skin units, these factors being understood.

The reason for the action of X-ray on living tissue is still obscure. It appears to act by so altering the chemistry of the cell that its activity is lessened. In large doses it appears to destroy certain cells. Apparently all cells can be destroyed if dosage is large enough. The younger the cell, embryologically, the greater the sensitivity to X-ray. Hence its usefulness in medicine, because the inflammatory cell and the malignant cell are younger developmentally than the normal tissue. In the case of malignancy there may also be some effect on the normal defense mechanism. It is probable that the X-ray is never truly stimulating. Apparently stimulating effects may possibly be explained by the greater effect of

the X-ray on the inflammatory defense reaction, thus allowing an increased activity in the disease treated.

Whatever its method of action may be, there is no doubt that X-ray is the most powerful and effective weapon the dermatologist has at his command. We use three main types of therapy,—one, the intensive for destructive effect; two, the epilating dose where the temporary removal of large quantities of hair is indicated; and, three, the fractional dosage in inflammatory dermatoses and to control itching.

For the first type of therapy the indications are practically limited to new growths. The principal benign new growths so treated are warts, and keratoses. There are, of course, many ways of removing warts. The X-ray is no better than any other of the thorough methods. In proper dosage, about two skin units, at two week intervals, it will remove about 80 per cent of all warts on which it is tried. It has the advantages of cleanliness and painlessness. Where the X-ray fails, I always use the electro-desiccation with local anesthesia, as any thing less radical is also likely to fail. This, however, will produce a little more scarring than the X-ray. There is one type of wart in which the X-ray is almost specific, and in which it is the method of choice. I refer to the plantar wart. Warts of the sole of the foot are quickly surrounded by callus. Very often they develop in a previously present callus which has been pared by a chiropodist. These little lesions from the very onset are very painful and tender, and often make walking almost impossible. Two to two and one-half skin units, with careful screening, repeated every two weeks, will nearly always cure these lesions. I have seen but two failures in a total of over thirty cases, with almost a hundred lesions in the group. The treatment has the additional advantage of nearly always relieving the pain in twenty-four to forty-eight hours after the first treatment. No doubt this is due to an anesthetizing action on the nerve terminals, as the pathology is not affected for several weeks.

Keratoses are localized old age spots on the skin. They occur especially on the exposed surfaces as a result of exposure to sun and wind, on the hands and feet as a result of prolonged arsenic therapy, and in chronic radio-dermatitis. The lesion is essentially an hypertrophy and hyperplasia of the epithelial lay-

ers, with surrounding inflammatory reaction. These lesions are distinctly precancerous, a very large majority of skin cancers developing from preceding keratoses. Therefore, they should always be removed as a prophylaxis against cancer, especially when thick and indurated. In the case of the radio-dermatitis, endothermy may be used. In all other cases two units of X-ray will painlessly remove these lesions. At times it is necessary to repeat the treatment, but as a rule one will suffice. As these lesions are never very large, the only after-effect is a mildly atrophied skin.

Keloids in the white race can usually be entirely flattened, leaving a smooth soft scar. The amount of X-ray needed, however, will often produce telangiectasia. This may often be minimized where practicable by excising the keloid, and treating the scar with X-rays to prevent the formation of a new lesion which will almost invariably occur if excision alone is practiced.

In the treatment of cutaneous cancer, the X-ray has one of its greatest fields of usefulness. In a discussion of this subject it is essential to separate the two main types of skin cancer: (a) The basal celled cancer. This type is usually located on the head, except the lower lip and ear. The commonest location is about the nose. It does not metastasize except in very rare instances, grows slowly, and usually kills after many months or years by eroding a large blood vessel, or producing such extensive destruction locally that weakness and toxemia carry the patient off. Because of these facts it is not to be regarded lightly; however, I have seen a number of patients die of basal celled cancer.

Practically all dermatologists and most surgeons now regard this disease as a problem of radio-therapy. When the lesions have not involved bone or cartilage, two skin units of X-ray every three to four weeks, repeated as often as needed to cause the entire disappearance of the lesion, and then at least once more, will cure most cases. Usually three to four treatments are necessary. If bone or cartilage are involved, X-ray is still worthy of trial, and will cure some of the cases. If the lesion persists, even in trace for six months, or recurs more than once, it is my opinion that the time for radio-therapy has passed. In these cases I believe that a thorough cauterization with the endothermy is indicated, and this job

should be done without any regard for ultimate cosmetic result.

It is in the treatment of the prickle celled skin cancer that so much difference of opinion exists between radio-therapists and surgeons. The following are my own conclusions, based purely on personal observation and experience in private practice and in looking around in other clinics. It is best to discuss the subject from the standpoint of location of the lesion. On the lower lip, prickle celled cancers treated by X-rays or radium alone probably are not so often cured as by surgery. However, a combination of electro-coagulation and X-ray or radium, with X-ray therapy of the draining lymph nodes often gives excellent results, and the cosmetic result is usually better than with surgical excision. A combination of surgery, with X-ray before and after the operation, particularly X-ray of the lymph nodes, also gives excellent results. In this case excision should be done with the endotherm knife to avoid metastasis at the time of operation. On the tongue, on the other hand, I believe the best chance lies with radio-therapy, particularly the injection of radium needles or radium emanation into the lesion, with thorough radiation of the draining lymph nodes. The lesion should first be thoroughly coagulated with the endotherm. Seeds are then injected around the cancerous area. There is usually quite severe pain after this procedure, and the patient should be kept under the influence of morphine while this lasts.

Prickle celled cancer is much the commonest type on the ear. X-ray should first be tried, as a large number can be cured by it alone, without loss of tissue which is so deforming. If it fails, a thorough electro-coagulation or wide excision should be done. In any case the draining glands should be rayed. Prickle celled cancer elsewhere on the face is unusual. I have seen a few cases, however, and X-ray has apparently cured them without the deformity that a wide excision would have caused. On the extremities these lesions seem to be quite amenable to X-ray. Several cases so treated are well at the end of three years without the loss of the member, which surgery would inevitably have necessitated in these cases. Cancer of the penis is probably best treated surgically, followed by X-rays to the draining glands.

One should give two and one-half skin units

to the lesion and a corresponding dose of filtered ray to the draining glands at three week intervals. In case of failure or recurrence after any procedure, I am a great believer in the electro-desiccation for these cases.

In melanotic sarcoma, the only real cures that have been effected have for the most part been those treated by radio-therapy. Thorough cauterization of the initial lesion should precede this treatment. I have treated one case of spindle celled sarcoma of the skin with electro-coagulation and X-ray and he is still well at the end of four years.

The use of the epilating dose is practically limited to the treatment of ringworm of the scalp and beard, and to sycosis vulgaris. In all of these the disease is extremely rebellious to ordinary therapy because the antiseptics used cannot get at the offending organisms because of the presence of the hair in the follicle. Remove the hair temporarily with the X-ray enables us to cure all cases of tinea capitis and of tinea of the beard. Most cases of sycosis vulgaris also respond to this treatment, and those that do not are nearly always incurable.

It is in the use of fractional therapy that the greatest field of usefulness of X-ray is reached in dermatology. In this field it is most convenient to consider the problem in three groups of dermatoses: (a) Those in which the ray is the only method of control, or practically the only method; (b) Those in which it is the most important single method, or in which very great reliance can be placed for relief; (c) Those in which it is of occasional value.

(a) There is perhaps only one disease in which the X-ray offers the only method of control. This is mycosis fungoides. In this nearly always fatal, and always exceedingly distressing disease, there was, up to the advent of roentgenotherapy, no method of controlling the terrific itching that goes with the disease from its very onset as a diffuse generalized scaly eruption. Furthermore, the disease progressed to the formation of the moist fungating tumors with their foul odor and debilitating effect, and the patient went on to a miserable death. Now, with fractional therapy, we can control the itching, cause a temporary disappearance of the dermatitis, resolve the tumors as they develop, and make our patient infinitely more comfortable, and greatly extend his life. Indeed, Fordyce has

recently reported some cases apparently cured by a combination of X-ray and arspenamin.

In addition to this there are two diseases in which the cure and control is so difficult, and the result from X-ray so brilliant that it may be said to be almost absolutely indicated. These are lichen planus and neurodermatitis (otherwise known as lichenified eczema, flexural dermatitis, lichen chronicus simplex, etc.). A quarter unit once a week, with the use of mercury internally in the case of lichen planus will clear up all but the most stubborn cases of this disease. Of course, one must look to constitutional causes where they can be determined to forestall a relapse.

(b). In the second group is the largest number of inflammatory diseases:

Acne.—Examination of my records shows that over 80 per cent of all cases that have consulted me for this trouble have been treated by the X-ray. In acne indurata X-ray is the only hope other than time, and time is mighty slow in these cases. The longer the disease persists the greater will be the scarring. Therefore, the ray should be urged as early as possible. In acne vulgaris of the milder form about 10 per cent can be cleared up by diet, arsenic, and drying lotions. This is especially true in acute cases, and should always be given a trial before resorting to the ray. The results from X-ray treatment based on personal experience and actual statistical study of over 200 cases may be stated as follows: About 95 per cent of cases so treated (excluding rosaceal acne) are cleared of their lesions under treatment. All these show permanent ultimate improvement, but from 15 per cent to 20 per cent relapse after treatment is stopped, and require further treatment or the use of lotions, etc.

In rosaceal acne the results are not so brilliant. About half the cases are cleared of their acne lesions, a few are improved, and the rest are not greatly benefited. The ray does not affect the rosacea itself.

The routine treatment in these cases is one-eighth unit a week. It takes from eight to sixteen treatments to clear the lesions. The ordinary precautions as to diet, personal hygiene, etc., should be observed. It is important to use no local treatment, as this will increase the danger of an erythema, which should never be produced in treating these cases.

More than sixteen treatments should never be given on the face.

During the course of X-ray treatment of the kind outlined, pigmentation may occur, especially in brunettes. The blondes frequently get freckles. Neither of these occurrences need cause concern, as they always clear up when treatment is stopped. The bad results that are sometimes attributed to the X-ray treatment of acne are chiefly that scarring and pitting are more pronounced. I feel that this charge is unwarranted. We have all seen marked scarring and pitting in cases where X-ray was never used. Furthermore, the longer the disease persists the more scars will be produced. It is extremely unlikely that X-ray could produce shrinkage in normal scar tissue in fractional dosage without also causing atrophy of the skin. It should be remembered that even in keloids, where the cellular activity is so much greater, erythema dosage is necessary to produce shrinkage of the lesion. In all probability the idea has arisen because the active lesions are all cleared up in a relatively short time under treatment, with the result that for a short time more scars from healed lesions are present, and the contrast with the normal skin makes the pitting more noticeable than the same number of scars would be were the acne lesions still present.

The greatest danger from this treatment is the production of chronic X-ray dermatitis with the disfiguring telangiectasia. This probably rarely occurs without the occurrence of an erythema. A rigid technique will prevent erythema, especially if one is skilled in the effects the ray produces on the skin, and does not push it in the presence of warning signs. There may be a few people who are radio-sensitive, and develop an erythema with a small dose. This point is still a matter of dispute, but in any case the condition must be very rare. Too prolonged treatment may cause atrophy of the superficial muscles.

Eczema.—For the purpose of this discussion we will speak of eczema. It should be understood that we never make this diagnosis without a qualifying term. In this case it includes all cases with the pathologic conditions that we formerly designated by that name. Eczematoid ringworm, infantile eczema, urticarial eczema, trade eczema, irritant dermatitis of all kinds except the very acute cases and seborrheic eczema, are a few of the cases included

in this group. The X-ray in one-eighth unit is much the best single measure for the relief of symptoms and the resolution of the inflammatory reaction. It should be emphasized that it does not affect the cause, and will produce a permanent cure only when the cause is removed, or has ceased to act at the time therapy is instituted. Understanding this limitation, it may be used in all cases of this group without danger. If there is not marked improvement from three or four treatments, further use should not be continued. The dangers pointed out for acne do not apply here.

Psoriasis.—In the treatment of psoriasis the X-ray has become one of our most useful agents. Any one who has ever seen the effects of chrysarobin ointment, or, in fact, any of the other local remedies that have any effect on this disease, will appreciate any method which is clean, painless, and not very time-consuming. X-ray treatment fulfills these requirements. One-eighth skin unit, once a week, will clear up the lesions in at least eight out of ten cases. However, there are certain drawbacks to the use of this treatment. We do not know the cause of the disease. Therefore, the treatment is purely symptomatic. Psoriasis has a most unfortunate tendency to recur. Sometimes the recurrence comes in a few weeks, sometimes not for many months. A few patches only may come back, or a general flare-up occur. It is, therefore, evident that once the patient gets used to the clean and easy X-ray treatment, he is going to demand this treatment with each recurrence, and if the danger of X-ray dermatitis from too prolonged use of the ray is pointed out and treatment refused, the patient simply passes on to another doctor for his treatment. With these drawbacks in mind and with a reasonable amount of precaution, if simpler measures fail, X-ray should be given a trial. It is not advised as a routine treatment for all cases, but it is a valuable measure where properly controlled.

The Infectious Granuloma.—Except for syphilis, all the infectious granulomata of the skin are favorably influenced in a considerable number of cases. In tuberculosis of the skin, lupus vulgaris is often favorably affected, and tuberculosis verrucosa cutis and scrofuloderma nearly always cleared up. In blastomycosis, actinomycosis, and sporotrichosis the ray is one of our valuable adjuncts in treat-

ment. It will nearly always clear up the lesions of granuloma annulare, and often those of sarcoid. In these cases one should use from one-half to three-quarters skin units every two weeks, just avoiding an erythema. Hazen calls attention to the danger of producing X-ray epithelioma in lupus, as the pathology of lupus and X-ray burns are strikingly alike.

In *localized hyperhidrosis* the ray is usually curative. In one-quarter unit doses applied weekly it will cause a gradual atrophy of the over-active sweat glands. One should be cautious not to carry the treatment too far.

In *pruritus ani and vulvae* X-ray therapy is frequently helpful. Cases vary considerably in their response. Some cases are not helped. One case of ten years' duration in my practice was entirely cured with one-quarter unit. Others can be controlled but require intermittent treatment indefinitely. On the whole, X-ray is a valuable aid in these cases.

(c). Among the diseases in which the X-ray is of occasional value may be mentioned lupus erythematosus. My own opinion is that its use in these cases is never justified. Beta radiation with radium may help some cases, but I have seen a number of cases made much worse and seriously damaged with both gamma ray and X-ray. Dermatitis herpetiformis is occasionally helped, though usually only a little relief from symptoms and no permanent benefits are produced.

Recurrent crops of furuncles, and carbuncles may at times be cured by epilating the area affected. Except in very localized areas hypertrichosis should never be treated by X-ray.

For the sake of completeness, I should mention that some of the rarer dermatoses are likewise favorably influenced. Lichen nitidus, dermatitis dysmenorrhoeica, synovial lesions and acanthosis nigricans may be mentioned as examples.

OBSERVATIONS ON MALNUTRITION.*

By SAM WILSON, M. D., Lynchburg, Va.

The observations in this paper are meant to apply to children between the ages of three and thirteen years respectively.

Of late years, there has been a great diffusion of knowledge as regards infant feeding and hygiene. As a direct result thereof, children in all classes of society, from the mansions of the wealthy to the warrens of the poor, receive intelligent care during infancy.

*Read before South Piedmont Medical Society, April, 1927.

Be it said to the eternal praise of the social service worker, that the above principle is reflected in a steadily diminishing infant death rate.

After three years of age, there is a relaxation of the scrutiny accorded the infant. As a consequence hereof, the child forms bad food habits and bad health habits. Moreover, this lack of surveillance is directly responsible for physical defects passing unnoted.

Even when noticed these physical defects are oft-times allowed to continue uncorrected under the delusion that the child will outgrow them.

These pre-school years, however, are very critical years in the life of the child.

This is attested by a glance at the mortality statistics. A perusal thereof reveals the fact that one-fifth of all deaths occur before the sixth year of life, or, six times as many as in the next ten years of life.

Those in a position to speak authoritatively tell us that an essential factor in this mortality rate is malnutrition. In other words, the malnourished child is particularly susceptible to infection, and often times succumbs almost without a struggle. This fact behooves us to throw every possible safeguard around the under-weight child during those years wherein he is most susceptible to those diseases that hurry to an untimely grave so many younglings of infancy and childhood.

Now, what are the causes of malnutrition? What causes did I indite years ago, and for a time accept, only later to spurn or relegate to a position of secondary importance?

First.—Poverty and insufficient food. Years ago when I began the practice of pediatrics, I considered malnutrition to be a question of poverty and food. I thought all that was necessary was to see that the child was supplied with sufficient food, and that it was properly prepared. I approached the study of the under-weight child from this viewpoint.

It soon became manifest to me that my conception was all awry, that while poverty may, relatively speaking, in a few cases be a contributing factor, it was not the fundamental cause of malnutrition.

It was, and is today, a matter of common observation to find mal-nourishment among my rich as well as my poor clientele. I also noted that only infrequently did we find two cases of malnutrition in the same home. This applied

to the tenderloin as well as the exclusive residential district.

Second.—Bad air, particularly referable to sleeping conditions. To my great surprise, the improved sleeping conditions did not reflect an improved physique in point of the child.

Third.—Heredity, especially as it applies to the constitutional vice of syphilis. This conception of the basic cause of mal-nourishment is still an hypothesis in some minds.

As my colleagues here in Lynchburg know, I formerly gave a great deal of mercury. I gave it freely to my cases of malnutrition. Now, after more than a decade of close observation thereof, I would mention it only to condemn it. I would peremptorily condemn it, because I have remarked, that, most under-nourished children are born of normal weight and continue to be well and strong through the period of infancy. Now, if lues was an etiological factor in these cases, you would expect to see some stigmata of syphilis, or get some history thereabout during the early period of life. There has been a signal absence of any immediate or remote landmarks that could be reasonably placed in the role of associative relationship with syphilis. This pronouncement of course applies to the generality of cases. Occasionally we find a case of malnutrition predicated upon a luetic basis, but, relatively speaking, it is an infrequency. This has been the experience in the large metropolitan centers where malnutrition has been studied extensively and intensively. When Wassermann tests were done on large groups of mal-nourished children, the evidence, that syphilis is an associative factor, was found to be negligible.

This dictum applies to tuberculosis as well as syphilis. I was particularly struck with the uniform negative von Pirquets in my mal-nourished cases. Those children that I thought might have tuberculosis gained just as rapidly in weight as the others when the cause of their underweight was ascertained and corrected.

I confess it was difficult for me to give up my syphilitic hobby, but, disconcerting as it was, I decided to disabuse my mind of this pre-conceived idea, and to study each individual case just as I found it. This I did with open mind, and it led to a new perspective and to a new reconstruction of values.

The chief causes of malnutrition in Lynch-

burg and its environs are, first, physical defects, and, second, over-fatigue.

Of course we see cases of malnutrition due to faulty food habits, such as eating with canine voracity, illy masticating the food and washing it down with a copious amount of water. We also see some cases due to faulty health habits, but these things are less important in the etiologic role of malnutrition. The outstanding, conspicuous causes of malnourishment in this immediate vicinity are, as I indicated above, namely, physical defects and over-fatigue.

1. *Physical Defects*.—In an examination of this species it is imperative that the child's clothing should be removed. It is only by this procedure that defects of posture and growth are likely not to be overlooked.

The facial appearance of the child is no measure of its nutrition. Repeatedly we see children with round, winsome faces, yet these same children have serious physical defects, that are clarified by an examination without clothing. This examination with child undressed is often a revelation to the parents and caretakers of the child. It may be argued that an examination of this kind takes too much time, and one can ill afford to do it. A point worth considering in this connection is that while the examination is time-consuming, yet its thoroughness does away with the necessity for its repetition, and thus in the end, is really time-saving.

Now, when I speak of physical defects I refer especially to naso-pharyngeal obstruction, for this is of paramount importance. Of course, one has to exclude such morbidities as pyelitis, intestinal parasites, etc., but all these things, relatively speaking, are of lesser importance. Pre-eminently the most important of all defects in its relation to nutrition is obstruction in the naso-pharyngeal vault.

A close scrutiny should always be made of the naso-pharyngeal vault when a case of malnutrition fails to gain and all other causes have been excluded.

2. *Over-Fatigue*.—Continued experience in the treatment of malnutrition leads me to the belief that over-fatigue is more frequently overlooked as a cause of malnutrition than any other factor.

Many grown people apparently have no adequate conception of how wearing are the activities of the average child. Many of those who

do recognize such a status, lightly pass it by as incidental to childhood, and to be viewed only as a temporary discomfort and not as a cause of serious injury.

Of course, we have no single test, or group of tests, that will serve as an accurate measure of over-fatigue. However, we are not helpless in this situation. We can tell a good deal by the way the child reacts to his tasks. Then, too, we have something upon which we can recoil with certitude, and that is the weight curve of the child. The weight curve is the most valuable test available to show the effect of fatigue. That statement can not be italicized too often. If the child fails to gain, after other known causes for his loss of weight have been removed, over-fatigue must always be suspected as the cause of his poor condition. I have seen very often cases of this nature where the simple expedient of enjoining mid-morning and mid-afternoon rest periods brings about an immediate gain and thus elucidates that over-fatigue was in fact the obstacle that prevented a satisfactory gain in weight.

Time and time again I have parents come into my office with the same old story. Its quintessence is thusly, "I went to Dr. So and So and he advised me to have my child's tonsils removed, stating that it was the cause of my child's poor health. I followed his advice, but my child is no better. What can be wrong, do you reckon?"

A careful inquiry into these case histories will elicit the fact that the child did need tonsillectomy. These cases nearly all give a history of recurrent tonsillitis, mouth breathing and so on, which manifestly justified the operation. The contention is not that the operation was groundless, but that the follow up treatment was omitted. The case had been treated from only one viewpoint, viz., the physical defect, while the equally essential principle, the fatigue element had been tabooed.

It is for recognition of the latter that I plead. This fatigue element is particularly noticeable in the wiry, high strung type of mal-nourished child. In the vernacular of the street, "he runs himself to death."

A study of his daily program will demonstrate how wearing are his activities. It is imperative to get an accurate rendition of this daily program. With this idea in mind I make the parents bring me a written statement of the child's activities for two consecu-

tive days. It is better to have a record of two successive days for one day may be abnormal. I usually choose Friday and Saturday because then you get an idea of his activities as they relate to school, and as practicalized on a day when he is out of school. This strikes a happy medium.

Now, with this illuminating photograph of his physical activities before us in black and white, and with a detailed list of all food taken on these two consecutive days, we are capacitated to advise the parent judiciously.

Sometimes it is necessary to bring out some facts about the child's over-fatigue that are not on the written record. For instance,—How long is the child actually in bed? How much of the time that he is in bed is spent in sleep? Does he get up in time to get to school without hurry and worry? It is most important to inform one's self as to the actual time that the child is asleep. Recumbency in bed, while beneficial, is not as salubrious as we desire it unless it is associated with sleep.

The amount of sleep needed varies with the individual, but every mal-nourished child should spend at least from ten to twelve hours in bed every night. In addition to this, a rest period should be enjoined in the middle of the morning and in the middle of the afternoon. These rest periods, of course, shorten the period of activity during the day and thus conserve many strength units and restore the waste of past activity.

A proper amount of sleep is absolutely essential to nutrition, and I am sure that the satisfactory results that I have had the good fortune to achieve in the treatment of malnutrition, have been due largely to my insistence that the child rest in a quiet, darkened room for two hours after the noon-day meal. I always insist that the room be darkened, because the nervous system is more completely relaxed, and sleep is more profound in the dark than in the light. This fact has been attested by experimentation. Children are so sensitive to all impressions that eyes as well as brains need the complete rest which darkness affords.

Now, gentlemen, the subject of malnutrition has not received the attention that it should receive. The mal-nourished child is not considered sick as long as he is out of bed and going around. His physician does not see anything exigent in his case. Apparently the condition is so commonplace that doctors as well

as parents pay little or no attention to it. The child is considered well and is so treated unless he shows some acute symptoms of some morbidity. This viewpoint is an egregious misconception.

There is no justifiable reason for the widespread malnutrition in this country. Anent the extent of malnutrition in America, nutritional statistics show that at least one-fourth of all children in this country are under-weight for their height. We affirm that there is no justification for this proven fact. Why? Because the essentials of health are so few and are so easily procurable.

The requirements for good health in the growing child are few indeed, viz., good air, simple food, rest and proper exercise. When these are supplied and the causes of malnutrition removed, then the child is in a condition that the nutrition worker speaks of as "free to gain." Once you get a child in the status of "free to gain," then you can rely on nature, you can recoil on nature with assurance for she will certainly give a strong impetus to the child's development, and the child will respond to this strong force in nature that makes for his recovery.

As to the procurability of these essentials of health, I can only speak authoritatively as regards Lynchburg and its environs.

I make the statement without fear of successful contradiction, that the essentials of health are available in almost every home in these precincts.

Milk and bread have become standardized. The market is flooded with an abundance of cereals that can be bought for a song. Thus, a large part of the dietaries is established on a high plane.

Nutrition workers tell us that even on East Side New York, the tenement section of Boston, or the slums of Chicago, substantially every home in these purlieus is capable of supplying the quantity and quality of food essential to health.

The basic cause of under-weight so rampant in this country, and so tragically reflected by the late Selective Service Draft incidental to the Great War is not pauperism or any thing similar thereto, but is an individual equation, touching the individual child as it relates to physical defects, food habits, health habits and over-fatigue.

I would not close this paper without dwell-

ing for a moment on the recognition of the mal-nourished child. You say—How may I identify the mal-nourished child?

We know that in infants the weight is the best test of good health on the part of the child. This principle applies throughout childhood; wherefore the weight curve continues through childhood, as in infancy, to be the surest indication of proper growth and development. The basis of weight for height has proved to be an accurate measure of the condition of under-nourished children. The idea involved herein is that a body of a certain height requires a certain weight to sustain it; therefore, the relation between this weight and height is the most important test of a child's physical condition. Weight charts are available at city, state, or Federal health bureaus and familiarity with such a chart should be a part of the indispensable armamentarium of the physician.

Then, too, there are certain physical signs of malnutrition that are self-evident. The expression of the face and eyes is an important sign. I have been struck with the fact that these children have a very serious look, a somewhat drawn appearance about the eyes. There are often dark circles under the eyes. They are usually pale and lack the glow of health. The skin is often very loose and loses its tense feeling; in other words, there is poor "tissue turgor". The muscles are very flabby and these children very often have a characteristic posture. This posture is technically called "fatigue posture." Its earmarks are about as follows, viz., the head sets forward, the shoulders are rounded, the shoulder blades protrude, the chest is rather flat and the abdomen is rather prominent. This posture is very much like the posture of an elderly man whose muscles are flabby and weak and who is bent by the decrepitude of advanced years.

We remarked that every physician should familiarize himself with a weight chart and accept a certain table of averages to guide him. After acceptance of such a chart, it will, of course, be necessary to determine what range of variation is compatible with reasonably good growth.

In nutrition classes, 10 per cent underweight is taken as the standard. In other words, it has been found that a child habitually 10 per cent underweight for his height will always show signs of malnutrition. My experi-

ence reflects the accuracy of this pronouncement.

In conclusion, I desire to say this: Time after time I have these cases come into my office with the diagnosis of "No Disease." It is true in the general acceptance of the term, there is no disease, but from the standpoint of physical fitness there is everything the matter with them. They have few or none of the trumps in this game we call "life," and it is for these that I plead. I plead for a careful diagnosis of these; I plead for a careful scrutiny of these, because it is from their ranks that the failures and the physical shipwrecks of life are later recruited.

Medical Arts Building.

"LEST WE FORGET."

By JOSEPH LYON MILLER, M. D., Thomas, W. Va.

By our memorial days we keep green the memory of the great personages and events in our religious and political life. With Christmas and Easter we remember the birth and death of Christ. The Fourth of July reminds us of the men who wrote and proclaimed one of the world's greatest documents of civil liberty. Other state and national holidays annually recall many important men and deeds of achievement.

Why then should not we, as members of one of the most honourable and ancient of the professions, from time to time devote a meeting of our societies, or at least more frequently present a paper recalling the names and work of those great physicians of the past, whose epoch-making contributions mark the progress of medicine from superstitious empiricism to scientific rationalism; and place in the written annals of our state the records of the work and influence of those worthy physicians whom we have succeeded—men whose careful experiments, or keen observation and interpretation of facts ages old, revolutionized the thought and practice of our art? Why should we leave all this to a few medical historians and antiquarians any more than leave to the President and Senate the keeping green the memory of The Declaration of Independence?

In presenting to us the existing state of medical practice our journals and textbooks, except in the more recent discoveries, but rarely give any historical perspective, or mention the various steps by which it has arrived at its present standing.

Such names of the old masters given are

but those attached to certain diseases or operations and mean nothing more to the rank and file of us. Nothing is said of what part they played in the evolution of our knowledge, or what manner of men were they.

How many of us know more of Harvey than that he discovered the circulation of the blood—was it by accident or by years of careful dissection and study; or of Lister than he is called the “father of antiseptic surgery”? What do we know of Galen, Vesalius and Fabricius, whose dissection and study of anatomy brought them to the very brink of Harvey’s discovery—great men, they, yet lacking something that made them fall just short of his accomplishment. What of White, of England, and Mott, of New York, who practiced clean—we might almost say *aseptic*—surgery years before Pasteur and Lister gave it a rational basis?

Americans, at least, should know that Oliver Wendell Holmes antedates Semmelweis by four years in publishing a paper proving the contagiousness of puerperal fever, and strongly indicting the attending physician and midwife, a paper that for its martialing of facts, clarity of reasoning, and incontestable conclusions will ever remain a gem of medical literature to be read and re-read with interest.

As we percuss a chest or abdomen, and listen with a stethoscope to the various sounds beneath the surface, do we ever think of Auenbrugger who gave percussion to the medical world in 1761, or of Corvisart, Napoleon’s physician, who re-introduced it in 1808 after it had been neglected for a generation; or of Laennec, Corvisart’s brilliant pupil, who invented the stethoscope in 1816 and introduced the profession to auscultation? Founders, they, of modern physical diagnosis, or as Osler said of Laennec, “his use of the stethoscope and observations on the diseases of the heart, lungs and abdominal organs may be said to have founded modern clinical diagnosis.” As we admire and follow the great work of Cabot in correlating the clinical history of a patient with the postmortem findings, do we ever think to give credit to that same brilliant Laennec who stood alone in his own and preceding generations as the pioneer in this form of clinical teaching?

VIRGINIA PHYSICIANS

What educated Virginian is ignorant of the names and achievements of Virginia’s sons in

politics, war, jurisprudence, letters and religion? But how many do you find, even in our own profession, who know aught of her sons in medicine? What history of Virginia gives more than a cursory mention, or none at all, of her medical men, albeit there is no lack regarding the other professions? Whose the fault—the historians? No. It is ours, the doctors of today and yesterday. We are the ones who permit the names and lives of those who preceded us to lie covered by the far-flung dust of oblivion; doctors, many of whom combined the distinctive qualities of all the other professions—the culture of the man of letters, the personality of the politician, the fearlessness of the warrior, the reasoning of the lawyer, and the charity of the minister; men who were described some forty years ago by a Virginia author as “gentlemen of the highest culture, refinement, and social position, who were an honor to their families, their race and their country, who, seeking and desiring neither the praises of the populace nor the honors attached to place and power, were contented to pass their lives in the bosom of their communities, and leave a record of their merits and deeds only as they were inscribed on the hearts and memories of their immediate countrymen. The high classical attainment, the exalted mental abilities, and the profound analytical powers of some of these men would render them, were they now living, veritable giants in our profession.” They were men who did none of the splendid, far reaching things of a Washington, Jefferson or Marshall, yet, nevertheless, they probably did more to mould public opinion, to keep the moral and social life on the highest plane, and to protect the physical and economic health of the state, than any other single class in it.

Space forbids mentioning more than a mere handful of those doctors of other days of whom Virginians should know and be proud. They should not forget that among the earliest botanists in America there were two Virginians of first rank, Dr. John Mitchell (1680-1768) of Urbanna, and Dr. John Clayton (1693-1773) of Gloucester, Fellows of the Royal Society of England, whose transactions contain many of their papers. They were also correspondents for years of some of the greatest naturalists of the world, who named some of our beautiful flowers for them. Mitchell published a Map of the British and French Dominions

in North America in 1755 that "marked an era in the geography of North America" and "was quoted in boundary negotiations"; he wrote probably the earliest and one of the best descriptions of Yellow Fever and its post-mortem findings of his day, but unfortunately it was not published until long after his death, so that others gained priority. Clayton was the author of "Flora Virginica" which appeared in several editions between 1739 and 1762, and this is referred to by all writers treating of North American plants.

Nor should they forget two Caroline physicians—Dr. John Tennant, author of the earliest work on "The Epidemical Diseases Peculiar to Virginia" (1738), and a pioneer in the profession's fight against quackery and professional jealousy; and Dr. William Baynham (1749-1814) who gave up a large and lucrative surgical practice in London to return to his native state, where in 1790 and 1799 he operated twice successfully for ectopic pregnancy, being preceded only by John Bard, of New York with one case.

Most Virginians know of U. S. Senator Benjamin Watkins Leigh, of Virginia, and H. G. Leigh, founder of Randolph-Macon College, but how many know of their kinsman, Dr. John Leigh, of King William County, who but two years after the close of the Revolution took the Harveian prize in Great Britain for his "Experimental Inquiry into the Properties of Opium and Its Effects on Living Subjects", of which Dr. Howard Kelley says: "Leigh's work was the dawning of the critical experimental spirit destined to yield such a harvest in the next century."

Nor should Virginia forget her great sons in the medical profession whose genius flowered in other states, such as McDowell, "The Father of Ovariectomy", and Dudley, the great lithotomist and teacher of surgery in Kentucky; and Nathaniel Chapman who took up the gauge thrown down by Sydney Smith in his sneering remark,—"In the four quarters of the Globe who reads an American book? What does the world yet owe to an American physician and surgeon?"—and gave an effective answer a hundred years ago by raising American medical journalism to the first rank in its day. He was also a great teacher, and founded the first post-graduate medical school in America.

One might go on indefinitely citing names

and epoch making discoveries in medicine, and recalling many Virginia physicians worthy of remembrance, but surely the few that have been mentioned are enough to arouse our interest and study. To those interested only in the history of medicine in general let me say: anatomy, physiology, clinical medicine, surgery, obstetrics—all have their great epochs and great names, men who laid stone on stone in the solid wall of the wonderful edifice of modern medicine. To those proud of their native state let me urge that they uncover the records of medicine's past in Virginia—fill the annals of the Medical Society full of data so rich that no future historian can find an excuse for not giving the medical profession its proper place in Virginia's lustrous coronet of her sons and their achievements.

Every doctor's library should include Camac's "Epoch Making Contributions to Medicine", Garrison's "History of Medicine", and Kelley's "American Medical Biographies", even if they do not go farther afield in medical history. Those who have not done so have no idea of the delight that comes with an hour now and then spent in the pages of such books, or of the broader and more interesting vision one gets of his profession.

Let us not forget—"The living present owes a debt to the past."

POLYURIA.*

By W. B. LYLES, M. D.,
and
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The object of this paper is a brief review of *polyuria* with the report of a case of more than usual interest. In connection with this we also desire to call attention to a new danger of prolonged drinking of excessive quantities of water for therapeutic purposes.

Before beginning a discussion of the subject at hand, it is well to recall that so far as we know the excretory function of the kidney is not governed by nervous impulses directly. Indirectly, it is influenced by vaso-motor changes that have a nervous origin. Thus, it is common knowledge that fright, worry, sleeplessness, etc., accelerate urinary flow. Rises in blood pressure from any cause tend toward diuresis; falls in blood pressure favor oliguria. The composition of the blood is an important factor. When it is more hydremic than normal,

*Read before the South Carolina Medical Association, Anderson, S. C., April 21, 1927.

polyuria is favored, but when the watery content falls to normal or below its excretion is resisted. The part played by the different portions of the kidney in the excretion of water is still unsettled. No one has improved on the theory advanced by Ludvig more than 70 years ago, that filtration of water and salts takes place through the glomeruli, and that water and certain salts are resorbed by cells lining the convoluted tubules, thus concentrating the urine. Metzner¹ carefully reviewed the subject and concluded that Ludvig was probably correct. It must follow, then, that urinary excretion is increased in the presence of one or both of two basic conditions: 1. Whenever there is increased circulation of blood through the kidneys; 2. Whenever the watery content of the blood is excessive. It is obvious that the blood flow through the kidneys is increased whenever the blood pressure is raised as by pituitrin or adrenalin, or when a local vaso-dilatation of the renal vessels is produced as by theobromine, diuretin, and caffeine. Excessive hydremia of the blood follows when too much water is absorbed from the bowel as in polydipsia, or when it is absorbed from the tissues as in diabetes mellitus in which disease there is an enormous increase in the molecular concentration of crystalloids in the blood. Upon a basis of these facts, all physiologic and most pathologic polyuria may be explained. For descriptive purposes it is convenient to divide pathologic polyurias into two classes,—first, those due to disease elsewhere than the pituitary region; second, those due to disease of the pituitary gland or adjacent tissue.

POLYURIA DUE TO DISEASE ELSEWHERE THAN THE PITUITARY REGION.

Under this heading we may classify polyuria such as that occurring during the removal of exudates and edemas, in chronic interstitial nephritis, in diabetes mellitus, and at times in hyperthyroidism and other constitutional diseases. From the view point of the urologist it is interesting to note that it may occur in certain surgical diseases of the urinary tract. The emptying of a large hydronephrosis, some types of renal congestion such as occur in prostatism, bladder malignancy, tuberculosis, and stone may cause polyuria. Keyes² states that in the early stages of unilateral renal tuberculosis the involved kidney may surpass its fellow in the quantity of urine excreted. Fletcher and Kearns³ report a case of severe

polyuria with thirst and polydipsia occurring in a patient suffering with carcinoma of the bladder. Pituitrin failed to allay symptoms, and autopsy did not show interstitial nephritis. Iams⁴ saw an interesting case in a child four years old who died of uremia. Both thirst and polyuria were severe and autopsy showed complete suppurative destruction of both kidneys, nothing but a shell remaining. He concludes that the excretion of urine must have been purely mechanical.

Neurologists are familiar with hysterical polyuria. As the name implies it occurs only in neurotic people and is due entirely to excessive water drinking. Sometimes great difficulty is experienced in differentiating it from true diabetes insipidus, for the patient is convinced that he must imbibe large quantities of water to make up for that excreted by his kidneys, and will deny emphatically that he drinks more than necessary. Whatever the cause originally, polydipsia in these people may become a habit comparable to morphinism or nicotinism. When one considers how frequently excessive intake of fluids is nowadays advised by physicians as a therapeutic measure, and the quantity of literature distributed among the laity by the proprietors of various mineral springs, it must be obvious that some overcredulous neurotics will become obsessed with the idea and develop into habitual hydro-maniacs. So far as we know, this danger has never been discussed; certainly it has never been emphasized. It presented itself forcibly to us in the form of the following case:

Mrs. J. H. G., age 45, consulted one of us in May, 1925, complaining of excessive urination, stating that she passed over a gallon of urine every day. There was excessive thirst and weakness, with dizziness and nausea when this was unsatisfied. She voided every hour or two throughout the day and night, and retired with a two gallon bucket of water and three chambers at her bedside. There was no other complaint. Careful history revealed that three years ago her physician had told her to drink "all the water she could hold" for the relief of chronic constipation and arthritis. Later she visited Hot Springs where the same advice was given and followed religiously by her. She does not remember when excessive urination began but thinks it came on gradually about three years ago and has gotten progressively worse. Physical examination was negative, as

was the urine except for a specific gravity of 1.004.

She was placed in the hospital and for two days allowed all the water she would drink. In this time she consumed four gallons of water and voided two and a half gallons of urine. Intake of fluids was then diminished a pint a day until she was getting only three quarts in 24 hours. No medication was given except a half dram ammoniated tincture valerian three times a day, a trial dose of pituitrin having had no effect on either the thirst or polyuria. The quantity of urine immediately became normal and at the end of three weeks she was discharged as cured. She has remained well for two years.

During treatment no serious symptoms were noted though she complained bitterly of thirst and could sleep only a few hours a day with the aid of full doses of veronal.

POLYURIA DUE TO DISEASES IN OR AROUND THE PITUITARY GLAND.

It will be remembered that Bernard in his experiments discovered a spot on the floor of the fourth ventricle which when irritated produced diuresis. Cushing obtained the same result by touching the pituitary gland with the cautery. Investigations of Camus and Roussy⁵ show that lesions of the tuber cinereum produce polyuria and that this occurs without participation of a secretion from the pituitary gland. Sajous⁶ maintains that the area of the brain immediately adjacent to the pituitary gland is a nerve center influencing water excretion through the kidneys, and calls it the hypophyseo-basal area. He believes it is directly connected with the kidney by means of a nerve path running through the cervical sympathetic and splanchnic plexus.

While much of the intimate detail of the function of the pituitary gland in its relation to urinary excretion is obscured by argument and conflicting experiment, the following facts appear to be established: 1.—Injury or manipulation of the gland or of tissue in its immediate vicinity, as may occur during certain cranial operations, causes diuresis. 2.—Disease of this area causes diuresis. 3.—The extract of the posterior lobe of the pituitary given hypodermatically will greatly diminish diuresis due to either of the above factors. 4.—Pituitrin has no marked effect on polyurias due to other causes.

Diabetes insipidus is at present recognized

as being of pituitary origin. Osler defined it as "a chronic affection characterized by the passage of large quantities of normal urine of low specific gravity." Most cases that have come to autopsy revealed disease in or around the pituitary gland. It was first noted by Willis in 1674, and differentiated from diabetes mellitus by him. It is rare, Brown⁷ having found only 15 cases in 25,000 admissions to the medical wards of St. Bartholomew's hospital.

TREATMENT

The treatment of polyuria not due to disease of the hypophyseo-basal area consists in eliminating the cause if this can be found. Very little relief is to be obtained from drugs, though valerian and ergot have been used empirically and may be tried. True diabetes insipidus and other polyurias of hypophyseo-basal origin are remarked benefited by pituitrin. Schafer⁸ was the first to call attention to the effect of this preparation on urinary secretion and, following him, in 1913, Von de Velden⁹ and Farini and Ceccaroni, working independently, administered it to patients with diabetes insipidus with excellent results. Since that time it has been used more or less routinely with success in properly selected cases. The usual dose is one-half to one c.c. given hypodermatically once in 24 hours.

SUMMARY.

Polyuria means the passage of excessive quantities of normal urine; frequency of urination is not involved in the meaning of the word.

It may be due to injury or disease of the pituitary gland or of tissue in its immediate vicinity. With this etiology pituitrin is practically a specific, giving speedy relief.

It may be due to various other extracranial diseases or injuries. Here pituitrin has little or no effect. Hysterical polyuria occurs in neurotics and has no pathologic basis. It is due to excessive water drinking which may become a habit comparable to morphinism. Physicians may cause the formation of this habit by unwise advice.

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Bibliotheca Obstetrica

Chamberlen (Hugh) [1630-].

Mauriceau (Francois) [1637-1709] The accomplished miswife, treating of the diseases of women with child, and in child-bed. As also, the best directions how to help them in natural and unnatural labours. With fit remedies for the several indispositions of new-born babes. Illustrated with divers fair figures, newly and very correctly engraven in copper. A work much more perfect than any yet extant in English; being very necessary for all teeming-women, as also for all physicians, chirurgians, and midwives that practice this art. Written in French by Transl. and enlarged with some marginal notes by Hugh Chamberlen. 10 p.1., 437 pp., 3 l., 16 pl. sm. 8°. *London, B Billingsley*, 1673.

For Biography, see Aveling (J. H.) The Chamberlens [etc.] 8°. *London*, 1882.

The origin of the obstetrical forceps is shrouded in mystery and is difficult to treat bibliographically. The secret was so jealously guarded by the Chamberlens through generations that the actual discoverer remained unknown until comparatively recent times. Aveling, who has carefully investigated all existing records of the family, believes that Peter Chamberlen, Sr., was the originator. Smellie mentions the fact that they were "contrived by the uncle," which could only mean Peter, Sr. The Chamberlens published nothing concerning the forceps except that they "by Gods, and our industry attained to, and long practiced a way to deliver a Woman in this case without any prejudice to her or her Infant;

though all others, (being reduced, for want of such an expedient, to imploy the common way) do, and must endanger, if not destroy one or both, by the use of these Crochets. By this manuell operation we can also both shorten the time, and lessen the number of pains in a right Labour, (if there be the least difficulty) without danger, and with advantage to both Woman and Child." Dr. Hugh Chamberlen in his introduction to the translation that he made of Mauriceau's work, goes on to give his reason for not making public such a wonderful method.

It is curious how loth the early inventors of forceps were to publish anything concerning their instruments. Palfyn, who was the first to exhibit obstetrical forceps before a Medical Society (Paris Academy, 1721*), published not a line concerning them. His instrument was first described by Heister in Germany in 1724. Duseé in Paris apparently independently devised a forceps, which was shown in Edinburgh by a pupil in 1733, the year of Duseé's death (Edinburgh Royal Soc. Tr. Vol. III). According to Schroder there was a family in Japan by the name of Kangawa who for years practiced a secret method of delivering women. Theirs was a contraption of whale bone and silk cord.

Dr. Hugh Chamberlen was the great-grandson of William Chamberlen, the Huguenot emigrant to England. Among William Chamberlen's children were Peter, Sr., and Peter, Jr. Peter Junior's oldest child, Dr. Peter, was the father of Hugh Chamberlen, and two other sons, Paul and John, all of whom attained to considerable reputation in London as obstetricians. Hugh Chamberlen's son, also named Hugh, was probably the most famous member of the family, and according to Norman Moore, his monument disfigures the north choir aisle of Westminster Abbey. This similarity in names, occupation and character has been very confusing and Aveling is due great credit in unravelling the mystery.

Hugh Chamberlen [1630-] like his great-uncle was accoucher to the Queen. At the birth of the Prince James Edward, afterwards known as the Old Pretender (June 10, 1688), Chamberlen came too late to be present. His very curious letter to the Electress Sophia of Hanover is still preserved and is considered

*Engelman gives the date as 1721, Doran 1722 and Schroder 1723.

The Translator

In the 15th Chapter of this Book my Author proposeth the conveying sharp Instruments into the womb, to extract a head; which is a dangerous operation, and may be much better done by our fore-mentioned Art, as also the inconvenience and hazard of a Child dying thereby prevented, which he supposeth in the 27th Chapter of this 2d Book.

I will now take leave to offer an Apology for not publishing the secret I mention we have to extract Children without books, where other Artists use them; which is, that there being my Father and two Brothers living, that practise this Art, I cannot esteem it my own to dispose of, nor publish it without injury to them; and think I have not been unserviceable to my Country, although I do but inform them that the fore-mentioned three persons of our family and my self, can serve them in these extremities with greater safety than others.

The Reader also may please to know that some explanations in the Margent, as lovingly, p. 6. and untimely, & unseasonably, p. 22. with some others, were never intended to have been inserted, but left for the Printer to make choice of the most familiar of them, which (he mistaking) was, to prevent further trouble, suffered to be so printed.

I do not intend this work to encourage any to practise by it, who were not bred up to it; for it will hardly make a Midwife, though it may easily mend a bad one. Yet notwithstanding I do recommend it to the yersall of all such women as are careful of their own

to the Reader.

and their friends safeties, there being many things in it worthy their noting: And designing it chiefly for the female sex, I have not troubled my self to oppose or comment upon any Physical or Philosophical Position my Author proposeth. I hope no good Midwives will blame me or my Author for reprehending the faults of bad ones, who are only aimed at, and admonished in this work; and I am confident none but the guilty will be concerned, and take it to themselves, which I desire they may, and amend.

Farewell.

Hugh Chamberlen.

From my House in Prujeans Court in the Old-Baily, London, this 15th of May, 1672.

ERRATA.

Photostat copy of the introduction to "the Accomplisht Midwife" (courtesy of the Army Medical Library), in which Hugh Chamberlen offers an apology for not publishing the secret. It is very evident from the next paragraph that the art of proof reading was little practised in the 17th century.

the most important evidence against the popular theory that the prince was a suppositious child. Like brothers, father and uncle, he was full of schemes, religious, political and financial. When his famous land bank scheme collapsed, he left London. His departure was emphasized by Luttrell's "Hue and Cry after a Man-Midwife."

At first he went to Scotland and later to Amsterdam, where he died in obscurity. The last record that has been found about him is a document dated November 14, 1720, in which he renounces the administration of the estate of his second son, Peter, late Commander of H. M.'s Ship Milford, a bachelor deceased.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Advantage of the Medical Auxiliary to the Medical Profession.

Following is the address to the Woman's Auxiliary in Petersburg, Virginia, October

19th, by Dr. J. Warren White, Norfolk, first vice-president of the Medical Society of Virginia:

This is not only a pleasure but a great privilege for me to appear before the Woman's Auxiliary of the Medical Society of Virginia. Your president, Mrs. Southgate Leigh, has always been so responsive when called upon in any movement for the advancement of the Norfolk County Medical Society, that I feel very happy to have this opportunity of expressing myself in regard to your organization.

When women were excluded from all rights and privileges, and men felt they only were qualified to gather around the council fires and discuss the affairs of state was probably a survival from the barbaric ages. That day has long passed and women are now taking an active part in the administration of the affairs of our government, national, state and local, in research work, science and the many professions. Even in the marriage vow the word obey is being omitted, showing that woman has assumed her rightful place as a helpmate and counsel for man.

The Woman's Auxiliary of the Medical Society of Virginia was organized October 1st, 1923, with only twenty-five members, and now it has a paid up membership of 350. This growing organization having the approval of the American Medical Association and the Medical Society of Virginia will continue its advancement only by getting the women in the various counties organized. As soon as the women get a vision of what they can accomplish in health and happiness for our home and state, then the results of their labors will be made manifest throughout this Commonwealth.

For those who have not yet awakened to the importance of this work, I can not do better than to quote from Mrs. John O. McReynolds, president of the Woman's Auxiliary of the American Medical Association: "It is what its name implies—a reserve force, an aid, a group of conscientious physicians' wives organized for the purpose of responding to the call of the medical profession. While our husbands are wrestling with purely scientific problems, we are playing our humble part in the drama of their life's work, our function being to assist in lightening the burdens of humanity, by helping to preserve the health of the people and by training the public as far as we can to a higher appreciation of the medical profession."

The one great object of the medical profession today is to teach the public preventive medicine, and in no way can they be assisted in putting over this great message better than by the help and co-operation of the Woman's Auxiliary.

The members of the Auxiliary in every county are usually among the most active club members. They are in a position to have special health meetings and give to these clubs the advances in preventive medicine, also stressing the importance of periodical medical examinations. In this way the health conditions of the community will be discussed by the women and they will continue to discuss it by the fireside. In no better way can this message bear fruit than the general discussion in the family circle.

I saw recently a newspaper article in which a mother protested against the medical advice given by a school inspector and gave as her reasons that the father had had toothache all his life, so the child would have to put up with it. Many persons argue what is good enough for his father is good enough for him, and some of us seem to think we must go through all the experiences of our forefathers. The opposition is strong in many homes to new ideas, and can only be overcome by education of the public.

Through the Auxiliary, the doctors' wives have become acquainted with our medical meetings, giving them a better knowledge of the work, thereby making them helpmates and pushing the profession on to greater things. When they become interested in the health problems of the community and take an active part in the Auxiliary, then they will be anxious for their husbands to take an active part in the medical societies and not isolate themselves. This alone will be a great stimulus to the profession, for it is essential that the modern physician attend medical meetings if he wishes to keep abreast of the times.

The Auxiliary has shown a spirit of co-operation and willingness to assist in every way possible. In the social features they have more than done their part in adding to the pleasure of the meetings and promoting a better fellowship.

As the Woman's Auxiliary grows and they become better acquainted with our objects and ideals, then will the profession at large have an organized body in full accord with them, to assist and encourage them to go forward,

when trying to accomplish some great object for the betterment of mankind.

Dr. Wendell C. Phillips, ex-president of the American Medical Association, in a recent address, said "May all mankind have the vision of a healthier, happier world which will blossom into unheard of activity. May we dedicate ourselves through service to all that will advance and maintain and increase the sum of human happiness. Every one who looks into the future is charged with being a dreamer. But the verdict of history has always been that the onward march of science, religion and civilization has been led by dreams."

"Who dreams shall live. And if we do not dream
Then we shall build no temple into time.
Yon dust cloud, whirling slow against the sun,
Was yesterday's cathedral, stirred to gold
By heedless footsteps of a passing world.
The faiths of stone and steel are failed of proof,
The king who made religion of a sword
Passes, and is forgotten in a day.
The crown he wore rots at a lily's root,
The rose unfurls her banners o'er his dust.
The dreamer dies, but never dies the dream,
Though Death shall call the whirlwind to his aid,
Enlist men's passions, trick their hearts with hate,
Still shall the vision live. Say nevermore
That dreams are fragile things. What else endures
Of all the broken world save only dreams."

—Dana Burnet.

The Woman's Auxiliary to the Norfolk County Medical Society,

At its annual meeting in November, elected Mrs. M. N. King, of Norfolk, president. At this meeting, the ladies voted to sponsor a movement for the establishment in the city of a hospital for the care of tubercular patients. The Auxiliary favors a 100-bed hospital for white and colored patients, to be a part pay and part charity institution. The immediate need for such a hospital in Norfolk was the main topic of discussion at this meeting, the City Home being the only place open to tubercular cases in that city, at this time.

Mrs. Charles R. Grandy, Norfolk, was made chairman of this hospital movement, and Mrs. Southgate Leigh chairman of health education.

The Truth About Medicine

In addition to the articles enumerated in our letter of September 26th, the following have been accepted:

DePree Company

Sulpharsphenamine—DePree

Sulpharsphenamine—DePree, 0.1 Gm. Ampules

Sulpharsphenamine—DePree, 0.15 Gm. Ampules

Sulpharsphenamine—DePree, 0.2 Gm. Ampules
Sulpharsphenamine—DePree, 0.3 Gm. Ampules
Sulpharsphenamine—DePree, 0.4 Gm. Ampules
Sulpharsphenamine—DePree, 0.45 Gm. Ampules
Sulpharsphenamine—DePree, 0.6 Gm. Ampules
Sulpharsphenamine—DePree, 1.0 Gm. Ampules
Sulpharsphenamine—DePree, 3.0 Gm. Ampules

Gilliland Laboratories, Inc.

Typhoid Vaccine, 30 Ampule package

Eli Lilly & Co.

Ephedrine—Lilly

Inhalant Ephedrine Compound—Lilly

Parke, Davis & Co.

Erysipelas Streptococcus Antitoxin (Refined and Concentrated)—P. D. & Co.

E. R. Squibb & Sons

Scarlet Fever Streptococcus Toxin—Squibb, 5 vial package (500, 2,000, 8,000, 25,000, 60,000 skin test doses)

Scarlet Fever Streptococcus Toxin—Squibb, 50 vial package (500, 2,000, 8,000, 25,000, 60,000 skin test doses)

Winthrop Chemical Co.

Mesurool

Emulsion Mesurool, 20 per cent

Nonproprietary Articles

Ephedrine (base)

NEW AND NONOFFICIAL REMEDIES

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+ (New and Nonofficial Remedies, 1927, p. 341).—This product is also marketed in packages of 30 bulbs each containing 1 c.c., representing ten immunizing treatments. Parke, Davis & Co., Detroit. (Jour. A. M. A., October 1, 1927, p. 1151).

Bromural—2-monobromisovalerylurea, obtained by the interaction of urea with bromisovaleryl bromide. Bromural is a nerve sedative which produces sleep in mild cases of insomnia without markedly affecting the circulation or respiration. It is claimed to be useful as a nerve sedative and for the purpose of inducing sleep in functional nervous disease. Bromural is not effective in cases of insomnia associated with pain, cough, angina pectoris or delirium. It is supplied in substance and in five grain tablets. E. Bilhuber, Inc., New York. (Jour. A. M. A., October 8, 1927, p. 1251).

Erysipelas Streptococcus Antitoxin Refined and Concentrated—P. D. & Co.—An erysipelas streptococcus antitoxin (New and Nonofficial Remedies, 1927, p. 337) prepared by immunizing horses with cultures of streptococcus isolated from erysipelas. The potency of the product is declared in "units," a unit representing the amount of antitoxin required to neutralize one skin test dose of toxin. It is marketed in packages of one piston syringe containing 500,000 units. Parke, Davis & Co., Detroit. (Jour. A. M. A., October 15, 1927, p. 1335).

Mesurool—Benzobis.—A basic bismuth salt of methoxy-hydroxybenzoic acid containing from 54 to 57 per cent of bismuth. Mesurool is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (see New and Nonofficial Remedies, 1927, p. 99, Bismuth Compounds). The drug is supplied in the form of emulsion mesurool, 20 per cent for intramuscular administration. Winthrop Chemical Co., Inc., New York. (Jour. A. M. A., October 22, 1927, p. 1427).

PROPAGANDA FOR REFORM

Grapefruit Infusions.—The use of a cold water infusion of whole grapefruit (including peel and pulp) seems to be one of the fads of Frank McCoy, who dispenses so much dietetic information that isn't so. According to McCoy, grapefruit "con-

tains organic quinine," which, he declares, has "a quicker effect than the inorganic form of quinine used in tablet form." According to McCoy, this infusion of grapefruit is "valuable in its action upon the liver and gallbladder in the elimination of gallstones." Few men have a larger fund of dietetic misinformation than that possessed by Frank McCoy. (Jour. A. M. A., August 6, 1927, p. 470).

Liver Extracts in Anemia.—The striking effect of feeding liver and certain preparations of liver on a number of physiological processes has been established. In the case of growing animals, it appears to promote rapid gains in size. The extraordinary effect of diets including liver on severe anemias of long standing in dogs has been shown. Vigorous regeneration of hemoglobin and red blood cells can be brought about by feeding the hepatic tissue of various species, beef, pig, sheep, calf and chicken having been tested with unquestionable success. Striking effects have been obtained in pernicious anemia with diets containing large amounts of liver in one form or another. Studies undertaken to determine the constituents of liver which are effective in pernicious anemia have been made and potent concentrates have been obtained. (Jour. A. M. A., August 13, 1927, p. 524).

Lucky Tiger.—This is a dangerous nostrum sold for the treatment of dandruff, eczema and sore feet. Because of reports of severe skin irritation following the use of "Lucky Tiger," the A. M. A. Chemical Laboratory analyzed it. The Laboratory concluded that the preparation consists essentially of ethyl (grain) alcohol, methyl (wood) alcohol, sodium salicylate and sodium arsenite. The amount of arsenic present as sodium arsenite was about one-tenth as much as found in solution of potassium arsenite (Fowler's solution). When the amount of the preparation that will be used in an application is considered, it can be readily appreciated what a relatively strong solution of arsenic this is. This preparation has no place among legitimate home remedies. (Jour. A. M. A., August 13, 1927, p. 541).

Lukosine Not Acceptable for N. N. R. *II.—Since publication of the report of the Council on Pharmacy and Chemistry on Lukosine, the National Drug Co. has informed the Council that the quantitative formula for the preparation is given in its price list and in its "revised advertising." The latter contains the following formula: "Boric acid, 80.5 per cent; alum, 9.2 per cent; zinc sulphate dried, 4.0 per cent; zinc phenolsulphate [Phenolsulphonate?], 2.5 per cent; sodium salicylate, 2.5 per cent; phenol, 1.0 per cent, rendered pleasantly aromatic with a blend of thyme, peppermint, eucalyptus and methyl salicylate. Each heaping teaspoonful contains 1/75 grain of hydrastine white alkaloid." In view of this the Council revises its statement by the omission of the word "semisecret" to read: "Lukosine is unacceptable for N. N. R. because it is a needlessly complex, and therefore irrational mixture, marketed with a therapeutically suggestive name and with unwarranted therapeutic claims, in such a way as to lead to its indiscriminate and ill advised use by the public." (Jour. A. M. A., August 13, 1927, p. 542).

Digitalis.—It is well known that many cardiac patients who fail to improve with full digitalization, owing to some unknown condition, show marked improvement when the same specimen of digitalis is given subsequently. Such cases afford opportunity for attributing extraordinary value to any digitalis preparation that the clinician happens to employ in the second course of treatment. (Jour. A. M. A., August 13, 1927, p. 543).

Fumigation and Antiseptics.—To prevent the spread of contagion, personal cleanliness, mechanical cleansing of contaminated areas and the boiling or burning of articles that are grossly contaminated is much simpler and safer than the use of antiseptics and fumigation. These often do little more than to give a false sense of security and leave a disagreeable odor. (Jour. A. M. A., August 13, 1927, p. 543).

Harrell Associated Chemists.—Harrell Associated Chemists, 322 W. Washington St., Chicago, exploit a mail order cure for rheumatism. As the head of the organization, one J. Randolph Harrell is put forward. In the advertising he is styled "Professor" and advertised as "an authority on physiological chemistry." The facts are, Harrell is unknown to reputable medicine, pharmacy or chemistry. (Jour. A. M. A., August 20, 1927, p. 637).

Alpha-Lobeline.—The Council on Pharmacy and Chemistry reports that under the name "Alpha-Lobeline," Ernst Bischoff Co., Inc., markets a solution of the hydrochloride of the alkaloid alphalobeline. The product is marketed in ampules stated to contain, respectively, 1/6 grain and 1/20 grain of alpha-lobeline hydrochloride. The product was submitted to the Council with the claim that its use was indicated in "asphyxiations, shocks and poisoning where there is central respiratory depression." The Council's report states that alphalobeline has been very extensively advertised with claims that are extravagant, often bordering on the sensational. The evidence as to the value and safety of the product is still so incomplete that the Council has been unable to reach a definite conclusion. The Council calls attention to a circular issued by the American distributors containing a "Partial List of Hospitals Using Alpha Lobeline" and to a paper by Norris and Weiss. To learn something as to the experience of some of these hospitals with the drug, letters were written to twenty-seven of the more prominent* of them. While the reports of some of these hospitals are favorable to the use of the drug (although it cannot be said that they are at all conclusive), it is evident that the circular containing this list of hospitals "where the drug is being used" gives an erroneous impression as to the extent of its use and of the results to be expected. The paper by Norris and Weiss and other papers which have been published contain no conclusive evidence regarding the usefulness of alphalobeline. Since adequate evidence for the therapeutic usefulness of alphalobeline is lacking at the present time, the Council has postponed definite action in regard to the eligibility of the drug for inclusion in New and Non-official Remedies. (Jour. A. M. A., August 27, 1927, p. 693).

Some Recent Observations on the Fat Soluble Vitamins.—The concentrate of vitamins A and D represented by the nonsaponifiable fraction of cod liver oil is not effective in herbivora unless it is fed dissolved in oil. These observations have been confirmed in the case of an omnivorous species. This makes one question the advisability of attempting to supply vitamins to man in the form of dry concentrates unless the latter are given in oil or in close proximity to a meal that carries fat. The ready solubility of vitamins A and D in fats made it seem likely that liquid petrolatum would also be a good solvent. Since the latter is not absorbed from the gastro-intestinal tract, and since it had a widespread use as a laxative, it is important to ascertain whether the fat-soluble vitamins in the food are liable to be "diverted" from alimentary absorption by the presence of the nonabsorbable

liquid petrolatum solvent. It has been shown that liquid petrolatum may act as a solvent for vitamin A, thereby depleting ingested foods of their supply of this factor. A comparable influence on the antirachitic vitamin has not yet been demonstrated, though it may naturally be expected if liberal amounts of liquid petrolatum are ingested. Attempts have been made to increase the antirachitic potency of cod liver oil by irradiation. The evidence indicates that this is not feasible. (Jour. A. M. A., August 27, 1927, p. 694).

Revising the Pharmacopeia.—Apparently some misunderstanding as to the exact nature of the United States Pharmacopeia has given opportunity for criticism of the work of the Revision Committee, particularly of the Subcommittees on Scope and Nomenclature. The first edition of the United States Pharmacopeia, published in 1820, expressed the purpose of selecting from among the substances used in medicine those remedies most worthy of medical employment. To any one at all familiar with the progress of the U. S. Pharmacopeia, it is obvious that it tends more and more to become a scientifically reliable work, to realizing more and more greatly the necessity for established proof of virtue before admission can be granted. (Jour. A. M. A., August 27, 1927, p. 697).

Hexol Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Hexol (formerly called Maxol), is manufactured by the Sanitary Supply Co., and is a pine oil soap solution stated to have the following composition: Pine oil, 65 per cent; rosin soap, 10 per cent; cocoanut oil soap, 10 per cent; water, 15 per cent. It belongs, therefore, in the class of pine oil disinfectants which were introduced some twenty years ago in the expectation that they would replace the cresol soap solutions such as Liquor Cresolis Compositus. The Council points out that the name of this unoriginal compound is not descriptive of the composition, and is also misleading in that it suggests the product to be an alcohol containing six carbon atoms. The Council reports on the lack of acceptable evidence for the claims that are made for the preparation and calls attention to a government bulletin giving notice to manufacturers of pine oil disinfectants in regard to the evidence which should be obtained before such products are recommended as general disinfectants. The council found Hexol unacceptable for New and Non-official Remedies because it is an unoriginal mixture marketed under a nondescriptive, proprietary name, and because it is marketed under claims that are unwarranted in the light of available evidence. (Jour. A. M. A., August 27, 1927, p. 711).

Book Announcements

Nasal Neurology, Headaches and Eye Disorders. By GREENFIELD SLUDER, M. D., F. A. C. S., Clinical Professor and Director of the Department of Oto-Laryngology, Washington University School of Medicine, St. Louis. St. Louis. The C. V. Mosby Company. 1927. Octavo of 428 pages with 167 illustrations, including 2 color plates. Cloth. Price, \$11.50.

Diseases of the Skin. By HENRY H. HAZEN, A. M., M. D., Professor of Dermatology in the Medical Department of Georgetown University; Professor of Dermatology in the Medical Department of Howard University, etc. Third Edition. St. Louis. The C. V. Mosby Company. 1927. Octavo of 572 pages with 248 illustrations, including two color plates. Cloth. Price, \$10.00.

Diseases of the Mouth. By STERLING V. MEAD, D. D. S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown Dental School; Professor of Diseases of the Mouth, Georgetown Medical School; Oral Surgeon to Georgetown Hospital, etc. St. Louis. The C. V. Mosby Company. 1927. Octavo of 578 pages, with 274 original illustrations in the text and 29 full page color plates. Price, \$10.00.

The Normal Diet. A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. By W. D. SAN-SUM, M. D., F. A. C. P., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, Calif. Second Edition. St. Louis. The C. V. Mosby Company. 1927. 8vo of 136 pages. Cloth. Price, \$1.50.

Tobacco and Physical Efficiency. A Digest of Clinical Data (with Annotated Bibliography). By PIERRE SCHRUMPF-PIERRON, M. D., Professor of Clinical Medicine, University of Cairo. Preface by HENRI VAQUEZ, M. D., Professor of Medicine, University of Paris. Published under the Auspices of The Committee to Study the Tobacco Problem, with a Foreword by ALEXANDER LAMBERT, M. D., President. Paul B. Hoeber, Inc., New York. 1927. 8vo of 134 pages. Cloth. Price, \$1.85.

Nerve Tracts of the Brain and Cord. Anatomy: Physiology: Applied Neurology. By WILLIAM KEILLER, F. R. C. S., Ed., Professor of Anatomy and Applied Anatomy, University of Texas. New York. The Macmillan Company. 1927. Octavo of 456 pages. Cloth.

Strabismus. Its Etiology and Treatment. By OSCAR WILKINSON, M. D., D. Sc., Surgeon in Chief of Washington Eye and Ear Hospital, Washington, D. C. St. Louis. The C. V. Mosby Company. 1927. Octavo of 240 pages. Illustrated. Cloth.

Abbott Ampules of Guaranteed Purity and Accuracy. Therapeutic Suggestions for Their Uses. Copies may be obtained without cost on application to the Abbott Laboratories, North Chicago, Ill.

The Rockefeller Foundation. Annual Report. 1926. The Rockefeller Foundation, 61 Broadway, New York, N. Y. 466 pages. Paper.

Better Business Through Research in New England Industry. Introduction and Summary of Findings. Prepared for the Research Committee of the New England Council by the Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York. 29 pages. Paper.

The Growing Child. His Needs and Cares. By HERMAN N. BUNDESEN, Sc. D., M. D., Commissioner of Health, Chicago, Professional Lecturer in Public Health Administration in the University of Chicago, etc. Author of various books on health subjects. Octavo of 144 pages. Paper.

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Editorial

Detection of Pernicious Anemia.

Experience lends color to the observation that pernicious anemia not infrequently advances to terminal stages before recognition of the dire blood condition is made. As one's clinical experience widens, both from personal patients and consultation patients, one is impressed by a too great frequency of failure to detect pernicious anemia in anything like early stages. Pernicious anemia has had too inconspicuous a place in medical literature; it has, along with other anemias, played subordinate roles. It has been possibly over shadowed by the larger light in the catalogue of disease:—tuberculosis with its anemia, malaria with its blood destruction, cancer with its cachexia, cirrhosis of the liver with its pallid and tinted complexion, and diseases of spleen with blood destruction have been foremost in consideration, without emphasis upon blood pictures. Too frequent instances have occurred in which there was a failure in the recognition of that distinct disease entity, pernicious anemia.

The awakening of interest in pernicious anemia has brought to light the suggestion, too, that there have been cases which have escaped recognition until very late stages.

If one keeps in mind accepted clinical signs of pernicious anemia, the disease may be rather easily picked up in the ordinary course of examination. This is particularly true in patients at all advanced. The mouth and tongue symptoms; stomach and intestinal disturbances; spinal cord degenerative signs together with

the yellow tint of the skin; progressive weakness, without marked loss of body fat, are readily recalled. Signs of blood destruction and also signs of abnormal blood cell formation, serve to give in microscopic study of the blood, those certain characteristics which distinguish or identify pernicious anemia. The high color index and the low red cell count stand out as signally important criteria in the diagnosis. Definite abnormalities of the red cells are found, which need not be cited here.

The acknowledged fatality of the disease under any and every sort of treatment makes for a grave challenge to medical progress. Since pernicious anemia was first described, by Addison in 1855, up to the present time, medical treatments of one sort and another have been employed. By some clinicians for a time a particular method of treatment may have been favorably considered, but in the course of time, no treatment has stood the test.

The past two years has seen the presentation of a system of treatment which to say the least presents favorable data of about 150 cases of pernicious anemia. This is probably the largest group of this disease ever studied.

The combined papers of Minot and Murphy and Koessler and Maurrèr, appearing within the past two years, presents a consideration of this disease from the standpoint of the treatment which rightfully arrests the attention of clinicians. It is all very well for individuals to suggest this or that objection, based upon the study of a few cases but the weight of opinion must be yielded to those who can present findings of importance after a study of 150 cases of this rather infrequent disease. The use of both groups of cases, above referred to, is employed because both groups of observers emphasize the same fundamentals. Minot and Murphy emphasize liver, and Koessler and Maurrèr, vitamins; but a reading of the details of treatment disclose that fundamentally, there is marked similarity. So one may, in commenting, say generally that a favorable method of treatment based upon the rich vitamin and high caloric diet treated with indications of steady improvement in 150 cases, gives one the feeling that a big fundamental has been struck in the treatment of pernicious anemia.

Bile Flow.

Snell and co-workers have been making interesting studies on animals in the experimen-

tal obstruction of bile flow from the common duct, with special reference to the production of diseases of the liver and of the measure of impaired hepatic function thereby superinduced. Fructose tolerance test; nitrogen partition in the blood; serum bilirubin, and the phenoltetrachlorophthalein test were thus studied. The paper, of the present comment, reports work upon the bromsulphthalein of Rosenthal and White, the bile acid content of the blood, and the elimination of intravenously injected bile acids.

Our readers are asked to read this paper. The retention of bromsulphthalein closely paralleled the degree of bile retention and was in agreement with the tests of phenoltetrachlorophthalein, previously reported; the bilirubin content of serum decreased as the later stages, of induced hepatic disease, advanced. While intravenously injected bile salts were rapidly removed from blood stream of normal animals, in animals with obstructive jaundice, by ligations of the common duct, there was marked retention of bile acids.

Besides the important findings of these tests, which appear to possess special interest as criteria for judging hepatic disease and bile flow, the experiments showed certain clinical signs of liver disease which interests the practitioner and clinician. As much of the daily work of the internist and practitioner has to do with impaired hepatic function and advanced liver disease, the production of spectacular signs of liver disease and all its vascular compensatory phenomena, in a group of animals in the course of some three months, affords a special opportunity to observe the rapid demonstration in the animal of a disease that in man takes years to consummate.

They studied fifteen animals; one group in which the common duct was ligated; another group in which cholecystectomy was performed, in addition to the ligation of the common duct. The animals were fed a diet of milk, meat, and dog-biscuit. After the obstruction by ligation of the common duct was made the dogs showed (1) anorexia (2) weakness (3) progressive loss of weight. To overcome these symptoms some of the dogs were daily fed by a stomach tube with a mixture of corn syrup and milk. This helped to keep the dogs in better condition following operations. Two of the dogs lived for 108 and 120 days.

It is worth while to follow the history of

dog in Experiment I. October 29, 1925, a twenty pound dog, female, was operated upon and the gall-bladder was removed and the common bile duct was ligated in two places and severed. This dog lived 108 days. The day after operation jaundice appeared in the eyes and mucous membranes and in the urine. On November 1, this jaundice was very marked and feces were of a light color. The dog gradually, with feeding by corn syrup and milk, recovered from the operation and attained a fairly good condition. The jaundice gradually decreased and the animal gradually lost weight.

In about eight weeks after the operation, with a decrease of jaundice evident, interesting phenomena of the collateral circulation began to appear on abdominal wall, with drop-sical accumulation of fluid in the abdominal cavity. Ascites increased rapidly and by January 1st, an increase in weight was observed. On February 1st the weight was about twenty-three pounds, the hind legs were swollen and there was edema of the abdominal wall and ascites. On February 14th, the dog died. Necropsy showed marked edema of the abdominal wall and hind legs, and 3,800 c.c. of ascitic fluid was removed from the abdominal cavity. Signs of collateral circulation were noted in the vessels of the omentum; in the veins of lower part of the esophagus, in the stomach circulation; in the veins of Sappey; in the splenic vessels, and in the pelvic plexus of veins. There was at necropsy very little evidence of bile stain in tissues or fluids of the body. The liver was small, shrunken, tough and reddish brown, freely mottled with granular formations. The common duct was greatly distended and the obstruction was complete.*

Such a course of events superinduced by ligation of the common duct brings to mind that course of clinical events observed in hepatic disease in the human following infective disease of the gall-tract and in certain diseases of the liver. Every clinician has seen the development of such a train of symptoms, more or less parallel to those in these dogs. The degree of the symptoms varies, of course, with the completeness and permanence of the damage done. Persistent resistance to the out-flow of bile; constant abridgment of hepatic function; years of over use of hepatic cells,

*The work of Snell and Greene and Rountree, *Archives of Internal Medicine*, Oct. 15, 1927.

by excess of food or drink, chronic focal infection of the gall-tract or the bile radicals, may bring in the human, in the course of time, what was induced in three months in the dog.

Gall-Bladder Disease.

Rehfuss has recently discussed differential diagnosis of gall-bladder disease (*Annals of Internal Medicine*, Vol. I., No. 2, Pg. 80). He takes the following point of view:

1. Gall-bladder disease is an effect rather than a cause; a result rather than a provocative agent in many cases.

2. Gall-bladder disease cannot be divorced from the central hepatointestinal system of which it is a link in the chain.

3. Gall-bladder may be considered as an actual functioning diverticulum in the afferent transit system from the liver to the bowel.

4. Gall-bladder disease rarely exists alone. The liver is usually implicated.

Following the thought of Heyd and MacNeal it is stated that cholecystitis is only a part of a generalized chronic infection, that cholecystitis is frequently associated with a certain degree of pancreatitis; that the colon is nearly always affected in some way; that the portal system is in many instances involved. In making a diagnosis the history, physical examination, X-ray examination, duodenal intubation and study of the blood serum, such as the Van Den Bergh reaction, the icterus index, blood cholesterol, are properly employed.

News Notes

We wish our readers and those they hold dear
A Merry Christmas and Happy New Year!

Tularaemia Situation.

A recent article, on the subject of Tularaemia, in one of the popular weekly Journals having a large circulation has led to a wide spread interest in this disease throughout the state. The interest caused by this article and the desire for facts concerning the disease as evidenced by numerous inquiries causes me to believe that a brief statement as to the actual situation might be of interest.

In the February issue this year of the *Medical Monthly* a brief article was published describing the symptoms of Tularaemia and other

pertinent facts regarding this disease. These facts will not be repeated but a reprint will be gladly forwarded to anyone interested. The publication of this article had one very interesting result. It attracted the attention of Dr. C. H. Davidson, who had had, in a certain section of Rockbridge County, a series of cases of fever which had never been satisfactorily diagnosed. After reading this article he obtained blood specimens from several of these patients. Even though the cases were several years old the agglutinins were found to be still present in the blood thus giving a positive diagnosis for Tularaemia. Two of these cases occurred in 1920 and are probably the first definitely known cases in the eastern part of the United States.

Up to the present time we have had in the State of Virginia definite knowledge of only twelve cases of this disease. There have probably been many more cases, nevertheless, I believe there have not been enough cases to justify the fear that has arisen. The twelve cases of which we have definite knowledge are as follows:

One from Chesterfield County (1924), by Dr. T. S. Shelton, Richmond.

Three from Rockbridge (two in 1920 and one in 1925), by Dr. C. H. Davidson, Lexington.

Four from Lee County (1925), U. S. Public Service Report, Feb. 26, 1926.

One from Surry County (1925), by Drs. Douglas Vanderhoof and T. D. Davis, Richmond.

One from City of Richmond (1926), by Dr. C. I. Sease.

One from Essex County (1926), by Dr. F. B. Wilson, Tappahannock.

One from Pittsylvania (1927), by Dr. J. C. Anderson, Chatham.

As noted above there has been only one case so far in 1927. The actual situation does not apparently justify the fear that has arisen concerning the eating and handling of rabbits. Rabbits that appear sick and those brought in by dogs or cats should be avoided. It would likewise be advisable for any person handling large numbers of rabbits to use rubber gloves habitually. Tularaemia is nearly always contracted by material from a rabbit getting into an open cut or sore on the hand. There is, of course, no danger from the eating of the cooked rabbit.

It is urged that physicians send in specimens of whole blood from all suspected cases, so that if this disease is prevalent in any part of the State steps can be taken to control it.

AUBREY H. STRAUS, *Director,*
Laboratories State Board of Health and
Richmond Health Bureau.

The Post-Graduate Medical Society of Southern Virginia

Held its regular meeting at Surry, November 8th, under the presidency of Dr. E. W. Young, of Petersburg. Dr. W. C. Powell, Petersburg, is secretary-treasurer. Following a subscription dinner, the first part of the program was given over to "Journal Hour" which was participated in by Dr. W. W. Seward, of Surry, Dr. J. H. Parker, of Den-dron, and Dr. Herbert C. Jones, of Petersburg. Following this there was a symposium on "Pneumonia", which was discussed by Dr. J. M. Bailey, of Hopewell, Drs. W. M. Bowman, J. Bolling Jones, W. A. Reese and W. B. McIlwaine, of Petersburg. Discussion on this was opened by Dr. Joel Crawford, of Yale, and Dr. F. E. Steere, of Claremont.

This Society is composed of doctors from the counties of Nottoway, Dinwiddie, Prince George, Greensville, Brunswick, Surry and Sussex, and the attendance of thirty-three at this meeting gives promise of its being an excellent organization.

The Lee County Medical Society,

At a meeting held recently, re-elected Dr. C. C. Pearce, of Pennington Gap, president, and elected Dr. P. D. Pence, of St. Charles, secretary.

The Augusta County Medical Association

Held its regular tri-monthly meeting in Staunton, November 2, the members joining in a subscription supper. Dr. J. Fairfax Fulton gave his address as president, and Dr. M. J. Payne read a paper on "Some Phases of Anemia". Dr. W. F. Hartman, Staunton, R. D. 7, is secretary, and Dr. T. M. Parkins, Staunton, treasurer.

The Clinch Valley Medical Society

Held its semi-annual meeting at Norton, November 4, with an attendance of forty-four members. Dr. C. B. Bowyer, Stonega, presided. Papers were presented by Dr. W. W. Cort, professor in the school of Hygiene, Johns Hopkins University, Baltimore; Drs. N. H. Short, W. R. Culbertson and G. B. Setzler, of Norton; Dr. Charles Stevens of the Department of Experimental Medicine with Parke,

Davis and Company; Drs. J. D. Willis, Roy M. Hoover and E. G. Gill, of Roanoke; and Dr. Albert H. Hoge, of Bluefield, West Virginia. At the business session, the following officers were re-elected for a year: President, Dr. C. B. Bowyer, Stonega; vice-presidents, Drs. J. M. Daughtery, Nickelsville, P. D. Pence, St. Charles, and T. T. McNeer, Dante; and secretary-treasurer, Dr. J. C. Sutherland, Clintwood.

It was decided at this meeting that the seven counties comprising the Clinch Valley Medical Society—Wise, Tazewell, Lee, Russell, Dickenson, Buchanan and Scott—should each have a separate charter from the State Society and that the members from these counties should go into separate sessions at the meeting of the Clinch Valley Society to transact business or consider any questions of particular interest to the respective counties, but that they should have their papers and scientific sessions together. This plan should give the advantage of a stronger organization and better programs altogether.

The Piedmont Medical Society

Met at Orange, Va., December the 2nd, with a registered attendance of thirty-seven. This was an exceedingly interesting meeting with demonstrations and talks by Dr. Frank Stafford, of Blue Ridge Sanatorium, Dr. J. Edwin Wood, Dr. Wm. H. Goodwin, and Dr. V. W. Archer, of the University of Virginia. Dr. Archer substituted for Dr. J. S. Davis, who was taken ill after publication of the program. The importance of the organization of all counties composing the Piedmont Society was discussed and met with the endorsement of that body. It is hoped that all these counties may soon decide to secure charters from the State Society and arrange to have separate county meetings for a short period during meetings of the district society.

The following officers were elected for 1928: President, Dr. H. T. Nelson, Charlottesville; vice-presidents, Dr. W. C. Mason, Gordonsville, and Dr. H. L. McCoy, Crozet; secretary-treasurer, Dr. Lewis Holladay, Orange.

It was decided to hold the next meeting in Fredericksburg, Va., the latter part of May, in conjunction with the Northern Neck Medical Society.

The South Piedmont Medical Society

Held its semi-annual meeting in Danville, November 15th, under the presidency of Dr. Sam Wilson, of Lynchburg, Va. Dr. Geo. A.

Stover, South Boston, was in his accustomed place as secretary. In addition to several interesting papers by members and invited guests, there was a symposium on "The Diseases of the Heart Met with in General Practice", which was discussed by Dr. H. H. Hurt, of South Boston, Dr. T. N. Davis, of Lynchburg, Dr. J. J. Neal, of Danville, and Dr. O. O. Ashworth, invited guest of Richmond.

The Virginia Pediatric Society

Held its second annual meeting at St. Paul's Parish House, Petersburg, Va., Wednesday October 19, the president, Dr. N. Thomas Ennett presiding. For the purpose of mutual benefit it is the policy of the Pediatric Society to meet at the same time and place as the Virginia State Medical Society.

It was a very enthusiastic and interesting meeting and about thirty members of the Society were present. The Constitution and By-Laws were adopted and problems of child life and the practice of pediatrics were discussed in an informal manner.

The guest of honor was Dr. Wilburt C. Davison, Dean of Duke University. Dr. Davison spoke briefly during the discussion. The topic for discussion was: "Suggestions As To What Can Be Done To Develop The Virginia Pediatric Society To Its Broadest Possible Usefulness To The People and The Medical Profession of Virginia." The leaders for discussion were Dr. Franklin Wilson, of Norfolk, and Dr. Lawrence T. Royster, of the University of Virginia.

The following officers were elected for the coming year: President, Dr. Lawrence T. Royster, University; vice-president, Dr. Chas. E. Conrad, Harrisonburg; secretary-treasurer, Dr. Wm. B. McIlwaine, Petersburg.

After this the meeting was adjourned to meet October 17, 1928, in Danville, Virginia.

The Virginia Pediatric Society which was organized at Norfolk, October 13, 1926, promises, from the evident interest taken in it and with the membership of now over fifty, to be a vital adjunct in advancing the child welfare program of the State Board of Health and pediatrics in general throughout the State.

The Virginia Hospital Association

At a meeting held in Petersburg, October 19th, 1927, elected the following officers: Dr. J. M. Shackelford, Martinsville, President; Dr. Hugh H. Trout, Roanoke, and Dr. J. E. Rawls, Suffolk, vice-presidents, and Dr. John O. Boyd, Roanoke, secretary-treasurer.

The executive committee is composed of Drs. F. H. Smith, Abingdon, A. T. Finch, Chase City, and W. E. Brown, Charlottesville.

The next meeting will be held in Danville during the next meeting of the Medical Society of Virginia.

Married.

Dr. Carleton Moorman, Altavista, Va., and Miss Mary Katharine Smith, Martinsville, Va., November 16.

Dr. M. E. Hundley, Martinsville, Va., and Miss Mary Kate Black, daughter of Dr. Hugh R. Black, of Spartanburg, S. C., November 16.

Dr. Robert Felix Gillespie, recently of Wilder, Va., and Miss Mary Virginia Jessel Lebanon, Va., November 16. Upon return from a wedding trip they located at Bastian, Va.

Dr. I. H. Goldman, and Miss Katherine Trauerman, both of Richmond, Va., November 28.

Dr. Guy Carleton Amory, Hilton Village, Va., and Miss Bessie Lee Granger, Richmond, Va., November 26. Dr. Amory is a member of the class of '26, Medical College of Virginia.

Major Allen J. Black, U. S. A.

Former Virginian who has recently been stationed at Ft. Andrews, Mass., is on leave of absence in Richmond until the first of the year.

Chinese Playground, San Francisco, Real Recreation Center.

The Chinese playground in San Francisco's Chinatown district has proved a real center of recreation for 300 to 500 children daily who would otherwise have only the narrow streets of Chinatown for play space. This playground, opened some time ago as an experiment, was started with some misgivings, the director says, because of the deep-rooted class distinction among the Chinese people. The leaders, however, have been successful in conducting all the play activities on the basis of complete equality by appealing to the Chinese pride in politeness.

Dr. Paul Redd.

Who has been practicing at Yorktown, Va., for several years, has returned to Richmond, and is located at 2706 Fourth Avenue, this city.

State Supervision of Classes for Special-Problem Children.

Nine States conducted special classes for the care and treatment during school hours of defective or special-problem children. These

classes are under the supervision of one or more members of the staff of the State Department of education. Alabama, Connecticut, Minnesota, New Hampshire, New York, Ohio, Pennsylvania, Wisconsin, and Wyoming are the States that reported such service in 1926.

Dr. B. L. Naiman,

Of Norfolk, Va., has moved to Washington, D. C., and has offices at 1748 N Street, Northwest.

Dr. T. Duckett Jones,

University, Va., son of Dr. J. Bolling Jones, of Petersburg, Va., is spending a year in London, England, where he is taking special heart work at the University College Hospital Medical School.

Dr. W. E. Ritter

Announces that he has moved from White-wood, Va., to West Graham, Va.

Scientific Exhibit at A. M. A. Meeting.

The Committee on Scientific Exhibit of the American Medical Association announces that it will now begin receiving applications for space at the Minneapolis meeting, June 11-15, 1928. All applications must be received before March 20th. The Scientific Exhibit will be housed in the Minneapolis Auditorium, in which building will also be the Registration Bureau, Technical Exhibits, and some of the Sections of the Scientific Assembly. Those interested in securing space for scientific exhibits may secure application forms for space from the Director of Scientific Exhibit, A. M. A., 535 N. Dearborn Street, Chicago, Ill.

Dr. A. G. Coumbe,

Who has been serving as manager of the sub-office, U. S. Veterans' Bureau at Honolulu, T. H., has been transferred to the U. S. Veterans' Hospital, at Fort Bayard, New Mexico.

The Association of Women Physicians of the South

Held its annual dinner in Memphis, Tenn., during the meeting of the Southern Medical Association, on Wednesday evening, November the 16th, just prior to the president's reception. This is a social organization in which all women doctors in the Southern Medical Association are eligible to membership. Drs. Mary Baughman and Pauline Williams, both of Richmond, were the only women doctors from Virginia in attendance. Dr. Anna Sawyer, Atlanta, Ga., was elected president for the coming year, and Dr. Mary B. Baugh-

man, Richmond, was elected secretary-treasurer.

Austria's New Social-Insurance Law.

A law regarding sickness, accident, and invalidity insurance, passed April 1, 1927, makes insurance compulsory for all manual workers and apprentices, except those employed in agriculture and forestry. In the law of 1888, which this supersedes, and all previous laws, only those whose wages were below a certain amount were insured, and benefits were less generous. A law of 1920, however, requires all clerical workers to be insured.

Under the law of 1927 sick benefits are paid not only to insured persons, but also to the noninsured wives of insured men and their dependent children, whether legitimate or illegitimate. The sick benefits consist of cash payments, and medical aid, though institutional care may be substituted. Insured women are entitled to maternity benefit, paid at the rate of the sick benefit, for six weeks before and six weeks after confinement. Noninsured wives of insured men receive one-half of the regular sick benefit during that time. Nursing mothers, whether wives of insured men or insured in their own right, receive for twelve weeks a nursing benefit paid at half the rate of the sick benefit.

Surgeon H. McG. Robertson,

Public Health Service, has been relieved from duty at the Marine Hospital, in Boston, Mass., and directed to report to the Surgeon General, Washington, D. C., for duty. Dr. Robertson is a native of Virginia and a member of our State Society.

Dr. J. W. Devine

Has returned to his home in Lynchburg, Va., after taking a course in surgery at the Mayo Clinic.

Dr. H. T. Schiefelbein,

Of the class of '23, Medical College of Virginia, for sometime of Eckman, West Virginia, is now taking post-graduate work at Bellevue Hospital, New York, City.

Dr. W. D. Woolwine

Has returned to his work at Pearisburg, Va., after nearly two years at Catawba Sanatorium, Va.

For Sale—17,000,000 Christmas Seals!

More than a billion and a half Christmas Seals have been distributed by the National Tuberculosis Association, this year, the Virginia Association having taken 17,000,000 for

sale in this State. These seals that are sold for one cent each have made possible the organized campaign against tuberculosis that has been carried on with ever-increasing emphasis year by year. These Christmas seals also stand for something more, for they are truly health seals, since whatever helps to prevent tuberculosis helps to make for health.

With the money raised by the sale of seals there have been secured hundreds of sanatoria, where those ill with tuberculosis may receive care; preventoria, where children who have been exposed to the disease may be built up to resist its attack; tuberculosis nurses to care for patients who are ill in their own homes; and clinics, where examinations and advice are freely given. To thousands of people has been given the optimistic message that tuberculosis is a curable disease.

Steady progress is being made in the fight against it, for since 1915 the death rate from it has been cut forty-one per cent in Virginia. Christmas seals furnish the ammunition that is helping to win the battle. Let each one do his bit.

Invitation to Virginia Doctors.

The Medical Society of the District of Columbia has sent an invitation to all physicians visiting in the Nation's Capitol to make their Society building at 1718 M Street, Northwest, medical headquarters while in Washington. There will be found a library containing current medical periodicals, daily lists of clinics held in the various hospitals and opportunities for making personal contacts with the local profession.

Investigation of Effects of Child Labor.

In order to determine the effect of labor upon juvenile delinquency, the Government of the Federal District of Mexico made an examination of children who came before the children's courts. It was decided that the effect of labor upon children is a noticeable physical inferiority and a tendency toward delinquency. A commission has been appointed to visit establishments employing children, so that cases of child labor may be reported and fines may be imposed on employers who work children overtime. Hygienic working conditions for children will also be required.

Progress of New York Medical Center

Such progress has been made on the Medical Center of New York in the past year, that by the first of February, 1928, the first unit, "The Presbyterian Hospital Training School for

Nurses", is to move from its old quarters at 71st Street to its ultra modern new residence at the Medical Center, Broadway and 168th Street. This building is a fifteen story skyscraper, constructed in the form of the letter H so that each room will have its own share of sunlight. It is connected by a tunnel with the main group of buildings which house the College of Physicians and Surgeons, the Presbyterian Hospital, the Sloane Hospital for Women, and the Squier Urological Clinic.

This grouping of medical institutions is unique in that the skyscraper, the building type that is individual to New York, is used to solve its hospital problem.

The buildings are all being thoroughly dried out in preparation for the opening of the hospitals, clinics, etc., in April, 1928.

Return from Philadelphia.

Dr. Thomas E. Hughes and Dr. E. Tribble Gatewood have returned to their homes in Richmond, after spending some time in Philadelphia, where they took special work under Dr. Chevalier Jackson in bronchoscopy, esophagoscopy and endoscopic therapy.

Dr. Jackson Honored.

Dr. Chevalier Jackson, chief of the bronchoscopic clinic of Jefferson Hospital, Philadelphia, was recently the recipient of the cross of a chevalier of the legion of honor, conferred by the French government.

Courses of Lectures in German.

The faculty of medicine of the Vienna University arranges courses of lectures in German every year, in order to enable doctors to continue and complete their studies, and to give them an opportunity of training in special branches. Four times a year—in February, June, September and November—International finishing courses, lasting two weeks each, are arranged, dealing with the progress in the different special branches.

The syllabus of these courses of lectures and the conditions for attending them can be obtained from the secretary, Dr. Kronfeld, Wien IX., Porzellangasse 22 or from the "Kursbureau" of the Vienna faculty of medicine, Wien VIII., Schlosselgasse 22. Applicants by letter are requested to enclose an international stamp-coupon for reply. Doctors are also given every information concerning board and lodging.

New Hospital for Crippled Children in Minneapolis.

It is expected that construction will start

this fall on the new William Henry Eustis Hospital for Crippled Children, which is to be built on the campus of the University of Minnesota. The funds for the new hospital, amounting to nearly \$600,000, have been provided entirely by Mr. Eustis, a former mayor of Minneapolis, who has established a trust fund for the maintenance of the hospital. The out-patient department will be financed by State funds already appropriated for the purpose.

Dr. Algernon S. Hurt, Jr.,

Richmond, of the class of '26, Medical College of Virginia, is a fellow in the Mayo Foundation, majoring in pediatrics.

Dr. Wilkins J. Ozlin,

Dundas, Va., is home again after spending about eighteen months at Catawba Sanatorium, Va.

Dr. F. O. Plunkett,

Lynchburg, Va., is spending some time in Chicago, where he is taking post-graduate work in obstetrics.

Doctors and Dentists Hold Joint Meeting.

The Richmond Academy of Medicine and the Richmond Dental Society held a joint meeting in this city, November 8th, which was largely attended. The addresses of the evening were made by Dr. Percy Howe, of Boston, Mass., President of the American Dental Association and director of the Research Division of the Harvard Dental School, his subject being "Influence of Diet on the Teeth and Their Supporting Tissues in Health and Disease", and by Dr. Thomas P. Sprunt, of the Medical Department of Johns Hopkins Hospital, whose subject was "Medical Aspects of Infections Arising in the Mouth."

American Board of Otolaryngology.

An examination was held in Detroit on September 12th, during the session of the American Academy of Ophthalmology and Otolaryngology. There were one hundred and two applicants for examination, with .107 per cent failures. An examination was held in Memphis on November 14th, preceding the session of the Southern Medical Association, with .127 per cent failures. In the course of the past year, three hundred and sixty-nine applicants have been examined.

In 1928, examinations will be held in Minneapolis, on June 11th, at the session of the American Medical Association, and in St. Louis, on October 15th, during the meeting of

the American Academy of Ophthalmology and Otolaryngology.

Prospective applicants for certificates should address the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, for proper application blanks.

Visit Planned to European Medical Centers.

The American College of Physical Therapy, the International League against Epilepsy, and the American Psychiatric Association have arranged visits to the European centers for next Spring. The purpose of these visits is to obtain by personal contact a comprehensive idea of what is taking place across the water and these Societies cordially extend to the entire medical profession an invitation to participate.

Perhaps the largest party to go abroad will be the American College of Physical Therapy. This group will sail from New York on May 26, 1928. The epileptologists and psychiatrists will precede them, sailing on March 17.

While in Europe psychiatrists will visit several of the leading clinics, including the famous "Bethel Colony of Epileptics," in Bielefeld, Germany. At various stages of their journey clinical discussions will be held. At these meetings leading specialists in psychiatry will address them.

The high point of the Physical Therapy tour will be the visit to Prof. Rollier's famous hospital in Leysin, Switzerland. This is the most famous clinic of its kind in the world, and where Dr. Rollier conducted his first experiments with heliotherapy.

Dr. R. D. Caldwell,

Lynchburg, Va., is taking special work in pathology at the Mayo Clinic, Rochester, Minn.

Dr. David P. Evans,

Of the class of '26, University of Virginia, Department of Medicine, upon completing his internship in medicine and pediatrics at the New York Post-Graduate Hospital, New York City, in the summer, accepted the position of resident pediatrician in the Jersey City Hospital, Jersey City, N. J., in which place he now is.

Handicap of the Hard-of-Hearing Child.

In one city school fifty-seven hard-of-hearing children repeated sixty-six classes, while fifty-seven with normal hearing, picked at random, repeated only eighteen classes. In another city there were three and one-half times as many hard-of-hearing as of normal hearing children who repeated grades. This report, based upon a two-year study, was given by a

special commission on education for the hard-of-hearing at the Annual Meeting of the American Federation of Organizations for the Hard-of-Hearing, held at Chautauqua, N. Y., in June, 1927. The commission recommends that special lip-reading classes be formed for children with defective hearing. To prevent such children from acquiring the peculiar voice and enunciation of the totally deaf, they should be returned to the regular classes after enough facility to follow classroom instruction has been acquired.

Dr. Nat H. Copenhaver,

Bristol, Va.-Tenn., as vice-president, has succeeded the late Dr. Sparrell Gale as active head of the Roanoke College Alumni Association until its annual meeting.

Dr. Ben H. Gray,

Richmond, was elected a member of the board of directors of the Country Club of Virginia, at its meeting last month.

Budapest Congress.

The Fifth International Medical Congress for Industrial Accidents and Occupational Diseases is to be held in Budapest during September, 1928. Dr. Tibor de Verebely, Professor at the University, is president of the executive committee.

The National Committee for the United States has been created and consists of the following: Dr. Volney S. Cheney, Chicago; Dr. R. W. Corwin, Pueblo; Dr. Eugene L. Fisk, New York; Dr. Otto P. Geier, Cincinnati; Dr. Leonard Greenburg, New Haven; Dr. George M. Kober, Washington, D. C.; Dr. W. J. McConnell, Philadelphia; Dr. Lloyd Noland, Birmingham; Dr. Francis D. Patterson, Philadelphia; Dr. George M. Price, New York; Dr. Frank L. Rector, Chicago; Dr. Wm. A. Sawyer, Rochester; Dr. Henry F. Smyth, Philadelphia; Dr. C. E. A. Winslow, New Haven; and Dr. Emery R. Hayhurst, Columbus, *Chairman*. A number of addresses have already been scheduled by various prominent Europeans.

Addresses and lectures are wanted from American physicians, dentists, and other specialists in the field. Such are requested to get in touch with the Chairman for the National Committee for the United States, Dr. Emery R. Hayhurst, Hamilton Hall, Ohio State University, Columbus, Ohio. General invitation is also extended to attend the Congress which will be arranged so as to coordinate with the "Deutscher Naturforscher Tag" to be

held in Hamburg, and the "Orthopadenkongress" to be held at Prague during the month of September, 1928.

Honor Dr. E. G. Williams.

The Virginia Education Association, meeting in Richmond, in November, voted to name the State Preventorium now being erected at the University of Virginia, The Ennion G. Williams Preventorium, in honor of Virginia's State Health Commissioner since 1908. The building is located at the University of Virginia and is being erected by voluntary subscriptions from the teachers as part of the University's medical extension program. It will provide accommodations for teachers who by treatment might be saved from serious illnesses.

Dr. Joseph Horgan,

Of the class of '26, University of Virginia, upon completion of his internship at Bridgeport Hospital, Bridgeport, Conn., located in Washington, D. C., where he is associated with his brother Dr. Edmund Horgan in the practice of surgery.

Scarlet Fever Control.

In a recent symposium on the control of scarlet fever, it was brought out that while the incidence of the disease had not been materially lessened during the last forty years, its severity had markedly decreased so that scarlet fever now causes fewer deaths than either measles or whooping cough.

Dr. F. A. Sinclair,

Newport News, Va., has been elected president of the Tidewater Fox Hunters' Association for the coming year.

The Civil Legion,

A National organization composed of those who in non-uniformed activities rendered patriotic service to the National cause during the World War, recently held its second annual convention and elected officers. The following doctors are among the members of the Virginia State Executive Committee: Drs. N. Thomas Ennett and Joseph A. White, Richmond; Dr. O. R. Fletcher, Sanford; Dr. Martin D. Delaney, Alexandria; Dr. W. D. Woolwine, Pearisburg; Dr. J. J. Hagood, Clover; Dr. William F. Drewry, Petersburg; Dr. L. O. Crumpler, Danville; and Dr. George W. Brown, Williamsburg.

National headquarters are at 163 West Washington Street, Chicago, Illinois.

The Seaboard Air Line Railway Surgeons Association,

At its meeting recently held in Miami, Fla., elected Dr. B. J. Witherspoon, of Charlotte, N. C., president. Dr. W. C. Powell, Petersburg, Va., was elected one of the vice-presidents. Dr. Joseph M. Burke, Norfolk, Va., is chief surgeon of this road.

Negro Boy Scouts.

Mr. Stanley A. Harris, a nephew of Joel Chandler Harris, has recently been appointed by the National Boy Scout Organization as director of interracial relations. His chief duty will be to spread the Boy Scout movement among colored boys. Mr. Harris has been connected with the Boy Scouts organization since its beginning. Last summer he conducted a course for Scout leaders at the Hampton Summer School, for which about thirty men registered, and it is hoped that the course can be made a yearly feature of the school.

Dr. Lawrence T. Royster,

Professor of Pediatrics at the University of Virginia, addressed the Richmond League of Women Voters, December the 8th, on child welfare work in Virginia.

Dr. J. T. Walker

Recently returned to his home in Gordonsville, Va., after a visit of some length at Maben, West Virginia.

Dr. W. L. Devany,

Dendron, Va., is home again after an extended visit to the Western States.

Dr. C. F. Manges,

Class of '25, Medical College of Virginia, who has been practicing for a time in Christiansburg, Va., has just located at Blacksburg, Va., where he will be engaged in general practice.

Canadian Juvenile Immigration.

The British and Canadian Governments have agreed to a joint expenditure of £1,000,000 over a period of ten years, in the form of recoverable advances, to assist British youths to become farmers on their own account in Canada. To be eligible, the boys must have received assisted passage, be between fourteen and twenty years of age on arrival in the Dominion, have passed through the provincial training centers, acquired the necessary training and experience by working for wages on a farm, and saved approximately \$500. Boys thus qualifying, on reaching twenty-one years of age may be loaned an amount not exceeding \$2,500 for the purchase of a farm, stock, and

equipment. The Dominion Government will administer this scheme, which will come into effect next April.

During a recent year farmers and householders made application for nearly 14,000 British boys and girls, while the number between the age of fourteen and seventeen brought to Canada through Government grants for passage was less than 2,000. This indicates how far the demand exceeds the supply.

Laboratorians in Bacteriology and Roentgenology Needed for Government Hospitals.

The U. S. Civil Service Commission, Washington, D. C., announces that hospitals of the U. S. Public Health Service and the Veterans' Bureau throughout the country are in urgent need of laboratorians in bacteriology and roentgenology. Applications for the positions will be rated as received until January 7, 1928. Applicants will not be required to report for examination, but will be rated on their education, training and experience, as shown by sworn statements and corroborative evidence. In securing details, ask for application blanks for Form 2374.

Health and Sunlight in England.

The "summer peak" of infant deaths has disappeared from the annual charts of infant mortality in England, and summer has become the safest part of the year for babies, according to Dr. Saleeby, chairman of the Sunlight League, speaking at a meeting during the National Baby Week recently held in London. It is now the dark first quarter of the year which is the most dangerous time for infants, but Dr. Saleeby expects improvement there through the operation of the new smoke abatement act which came into force last July, and which he believes will add an appreciable percentage of ultra-violet light to the cities.

The Seaboard Medical Association of Virginia and North Carolina

Is holding its annual meeting in Norfolk, Va., as we go to press. Dr. B. R. Kennon, Norfolk, is president, and Dr. Clarence Porter Jones, Newport News, is secretary. Indications from the program are that this will be an interesting meeting as are all of the sessions of the association.

Dr. Anita Lotti,

Of the class of '25, University of Virginia, after an internship in Washington, D. C., has located in Charlottesville, Va., with offices at 415 First Street, Northeast.

The Southside Community Hospital,

Located at Farmville, Va., was opened November the 9th. The hospital cost \$250,000 and was made possible by the large gift from the Commonwealth Fund of New York. The center portion of the hospital is two stories in height, with two wings of one story each. It is modern in every respect and has fifty beds and a staff of six graduate nurses and several nurse attendants in addition to the necessary office force. Mr. Harry Smith, chairman of the board of directors of the Commonwealth Fund, in a talk at the opening exercises, stated that the Fund proposes to offer a limited number of fellowships to local physicians for post-graduate study and plans annual institutes and educational clinics.

That Blue Slip Again!

In this issue of the MONTHLY, will be found a blue slip which we hope is a loud enough color to speak for itself. Members who have paid their 1928 dues to the Society need pay no attention to it. If the rest of our members will heed its warning, it will prevent them receiving many unwelcome letters and will save the Society's office an immense amount of detail work.

Please give us your co-operation in this.

Dr. and Mrs. Tom A. Williams,

Formerly of Washington, D. C., now of Miami, Fla., have returned from a summer spent in Florence, Italy. On their way from New York, they visited a number of the larger eastern cities.

Additions to Winchester Memorial Hospital Completed.

On November 10th, an informal reception was held at the new Memorial Hospital in Winchester, Va., that the public might inspect the plant which has been greatly enlarged. The improvements cost nearly \$200,000 and it is claimed that the Winchester Memorial is now the fifth largest hospital of its kind in the State. The new three-story addition has increased its capacity from seventy to one hundred and thirty patients. This hospital is now modern in every respect.

Commission on Juvenile Delinquency in France.

A decree issued by the President of France on June 8, 1927, provides for the establishment of a National Commission on Juvenile Delinquency, to be attached to the Ministry of

Justice. The commission will consist of twenty-five members appointed by the Minister of Justice, vacancies occurring later to be filled by the commission itself. It is to study questions of legislation and of the administration of institutions caring for delinquent children. It will also serve as a link between those institutions, co-ordinating their work and suggesting improvements.

Wanted:

Physician in good standing to take charge of general practice for two months beginning January 8th. Good salary. Address E., care VIRGINIA MEDICAL MONTHLY, 104½ West Grace Street, Richmond, Va. (Adv.)

For Sale:

X-Ray Tube Stand and High Frequency Outfit in excellent condition. Diathermy, Oudin, Tesla currents; Cautery and Diagnostic Lights obtainable conveniently. Address "Tesla", care VIRGINIA MEDICAL MONTHLY. (Adv.)

Obituary

Dr. Robert Glasgow,

For a number of years president of the State Board of Medical Examiners, died at his home in Lexington, Va., November 19, after an illness of several months. He was born at Fincastle, Va., June, 1857, and attended Washington and Lee University. He studied medicine at the University of Virginia, from which he graduated in 1878 and took post-graduate courses in New York City later. He located in Lexington in 1887 and joined the Medical Society of Virginia that year. Dr. Glasgow was one of the best known and most beloved physicians of his section, was school physician at Washington and Lee, and for a number of years health officer of Lexington. He was twice married. His second wife and several children survive him.

Dr. Thomas Carl Walker,

Asheboro, N. C., died October 8th at a hospital in High Point, N. C., of injuries received when he was struck by an automobile. Dr. Walker, who was fifty-six years of age, studied medicine at the Medical College of Virginia, Richmond, from which he graduated in 1895.

Mr. Samuel William Fairchild.

We announce with regret the passing of Mr. Samuel William Fairchild of the firm of Fairchild Brothers and Foster, New York, N. Y., on Sunday, November 13.

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THE LIFE OF LORD LISTER.

By EDMUND J. HORGAN, M. D., F. A. C. S., Washington, D. C.

It is an interesting coincidence that Louis Pasteur and Joseph Lister were born within the same decade; one in 1820, the other in 1827. A new era of surgery dawned upon the world during their lives and these two men played an important part in it, enlightening us by their investigations and contributions to the solution of a problem which had baffled surgeons since the beginning of the practice of this art.

The researches of Pasteur are proof that all scientific investigation, if carefully done and accurately recorded, has an inestimable value. Little did any one think when Pasteur made his contribution explaining the process of fermentation that in his work lay hidden the secret by which there would be divulged to the world the mode of contamination, infection and suppuration of living tissues by bacteria. This latter privilege was Lister's but it was his because he had prepared himself by previous scientific investigation. Pasteur was a true scientist, Lister a practical worker and an investigator.

Lister maintained an investigative state of mind throughout his professional career. This has brought us many benefits. As a dresser, a surgical assistant, and a surgeon he had observed too many times the sad termination by death of a patient who had a compound fracture or a lacerated wound. He knew that an incision made by a surgeon in order to perform an operation was nearly always followed by suppuration, erysipelas, or hospital gangrene and in a majority of these cases death would occur. He had also observed that when the skin was not broken a simple or a comminuted fracture would unite promptly and a contusion of the soft tissues would heal readily; that they would not suppurate and that the danger was slight. These facts were known to all surgeons of that period and for this reason the scope of the field of surgery was limited. It was only in a few of the larger hospitals and teaching institutions where the

specialty in surgery was practiced. Most of the surgery of that day was done by those who were also engaged in the general practice of medicine. Surgery was confined to the treatment of dislocations, fractures, traumatic wounds and those conditions which urgently required operation by the surgeon. On account of the disastrous results which were known to follow incision, only those operations which were absolutely necessary were performed.

Joseph Lister was born on the 5th of April, 1827, at Upton in Essex. He was the son of Joseph Jackson and Isabella Harris Lister, of the Society of Friends. His birthplace was a lovely old Queen Anne house with beautiful gardens, surrounded by fields which have since been built upon and are now a part of London.

Little is known of Lister's ancestors beyond a few generations although many Listers lived in Yorkshire. His parental great-grandfather, Joseph Lister, son of Thomas Lister, a maltster and farmer, left Bingley in Yorkshire about 1720, going to London where he established himself as a tobacconist. His grandfather, John Lister, was apprenticed to a watchmaker, and followed that trade for a time but gave it up to take over the business of his father-in-law, Stephen Jackson, a wine merchant. Lord Lister's father, Joseph Jackson Lister, was apprenticed to the wine business and at the age of twenty-two was able to take charge of it during his father's absence. It was a prosperous concern and still flourishes. Lister's maternal grandfather, Anthony Harris, a Quaker and a master mariner of Maryport, married Isabella Bull, of Dublin, Ireland. Harris was drowned at sea, leaving his wife with six children. She took over the superintendency of Ackworth, a Friends' school near Pontefract, and it was there that Joseph Jackson Lister met one of her daughters, Isabella, to whom he became engaged and later married. On one of his visits to Ackworth, Joseph Jackson Lister went to Bingley in Yorkshire, which he re-

ferred to as "the point where in tracing back the line of our ancestors our information terminates." In a letter written to his father from there he said, "How soon oblivion covers the memory of the race that has ceased to live, and except a few who have been made renowned by intellect, by action or by station all trace is lost that they had ever been, even to their immediate descendants, so I find it here." Little did he realize when he wrote these lines that he would one day have a son who would leave his name indelibly written in the history of surgery.

The Society of Friends to which the Listers and Harrises belonged was made up of frugal, sincere people. They did not participate in sports such as shooting or hunting, nor did they dance, play music or attend the theatres. Their special costume was plain and did not conform to the prevailing fashion of the day. As their lives were simple and their attention to business strict, many of them became wealthy. Their leisure moments were given to reflection, reading and the studying of languages. Some few devoted their time to science.

To give you an idea of how strict and studious they were John Lister, when aged fifty-nine, wrote to his son, Joseph Jackson Lister, then aged ten, "On inquiring after thee from J. Vully the usher, I hear that he has to complain of thy being so very long in writing about ten lines of copy, and with learning a little spelling, that two and one-half hours are often taken up therewith, which am satisfied thou mightest easily accomplish in one hour, so that thou hast but little time for the Latin, this has made me sorry." He ended his rather long letter with this postscript: "I think I have not been half an hour writing this though often interrupted and hope a word to the wise will be sufficient. We intended to have sent thee a plumb cake, had we heard a better report account but shall now leave it till another time." Lord Lister's father, the boy to whom this letter was written, left school at the age of fourteen to enter business but found time to devote to optics and in the pursuit of this subject his discoveries and contributions gained for him the Fellowship of the Royal Society in 1832, and a world wide reputation.

His son, Joseph Lister, was reared in an environment that taught him to be sincere, industrious, and studious. As a boy he attended private schools and his diligence was rewarded

by his high standing amongst the pupils. At Grove House, Tottenham, he was given instruction in the ordinary courses of such private schools which included the natural sciences, modern languages and the classics. The pupils were required to write essays in order to train them in grammatical construction and composition. More than thirty of Lister's compositions are preserved and were written when he was between fourteen and sixteen. In this collection there are four on "The Human Structure—Osteology" and one on "The Similarity of Structure between a Monkey and a Man," illustrated by Lister's drawings.

How industrious young Lister was and how little time he devoted to play may be judged by a letter written at the age of fourteen to his father while he was home on one of his holidays.

"As this is the last day I shall be here for some time, I thought I must just write a short note to thee to tell thee how I spent my time when Mamma was out, and also after she came home. When Mamma was out I was by myself and had nothing to do but draw skeletons, so I finished the cranium and named the bones of it, and also drew and painted the bones of the front and back of the hand, and named them. Mamma come home on seventh day, at about 2 o'clock, and in the evening, with John's help, I managed to put up a whole skeleton, that of a frog, and it looks just as if it was going to take a leap, and I stole one of Mary's pieces of wood out of one of the drawers of the cabinet in the museum, to stick it down upon, and put it on the top of the cabinet with a small bell glass over it, and it looks rather nice."

This letter also shows that at the age of fourteen he was developing the traits which made him the painstaking surgeon and investigator which led to his discoveries and fame.

As Quakers refused to take an oath or subscribe to the thirty-nine articles, they were barred from the old Universities. When Lister left Grove House he matriculated, in 1844, at the age of seventeen, at University College, London, a non-sectarian institution. Three years were passed in taking the subjects leading to the degree of B. A., which his father considered necessary in preparation for the study of medicine.

After an attack of small-pox and a nervous breakdown, he was required to take a long

vacation but in 1848 he was well enough to enter upon the study of medicine. He began the study of surgery shortly after the discovery of anaesthetics and as a freshman saw Robert Liston perform his first operation on a patient under ether anaesthesia at University College.

Lister's work was in earnest and in the examinations of the students of the schools of London he took honors which placed University College second. In 1852 he had acquired the degree of M. B., and the Fellowship of the Royal College of Surgeons.

About this time Lister was interested in ophthalmology and his interest led him to investigate the contractile tissue of the iris. He was able to show for the first time the existence of two distinct muscles in the iris, the dilator and the contractor, for enlarging and diminishing the pupil. This work was published and shortly afterwards he published a paper on the involuntary muscles of the skin. His first work in experimental surgery was done in 1853 upon the mesentery of the mouse and proved that there was no rhythmic contraction of the lacteal vessels and that no solid particles were absorbed and carried by them.

After completing his studies at the University of London in 1853 he decided to obtain a training in surgery. Upon the advice of William Sharpey, physiologist, who had studied in Edinburgh and in Paris, he decided to go to Syme in Edinburgh for a month, and then go to the schools in Continental Europe. Mr. Syme received him upon his arrival in Edinburgh and at once offered him the opportunity of assisting with private operations and put him to work at the hospital. After a month in Edinburgh, he decided to remain all winter and later his time for remaining in the North was lengthened to twenty-four years. During his first winter he was given the house surgency under Syme. He served for a long period in this position and had twelve dressers under him. His position was really that of surgeon with Mr. Syme as consulting surgeon and Lister had the opportunity of performing most of the operations. Later he was appointed assistant surgeon at the infirmary and became one of the "extra-mural" teachers of surgery. On April 21, 1855, he was elected a Fellow of the Royal College of Surgeons of Edinburgh. In the summer of this same year he became engaged to Agnes Syme, the eldest daughter of his devoted teacher and friend.

It was at this time that he gave up his connection with the Society of Friends and became a member of the Episcopalian Church. The marriage took place at Millbank, the home of Syme, on April 23, 1856. One month was spent by the young couple at the English Lakes and at Upton and three months on a tour of the continent. On this trip Lister visited most of the celebrated medical schools and met the well-known teachers of the day.

In September, 1855, his records show the beginning of experiments on the web of the frog's foot in his study on "Early Stages of Inflammation." This was a most important investigation and prepared him for the study of infection which he was to take up later.

Lister's next investigation was upon the coagulation of the blood. He disproved some of the older theories and he showed that there was imparted to the blood by the corpuscles "a disposition to coagulate." This was followed by a paper on "Spontaneous Gangrene." His papers had been widely read, one had been translated into the German, and he had become well-known, so much so that when Dr. Lowrie, the Professor of Surgery in the University of Glasgow, could no longer practice, Lister was considered a likely candidate. The professorship was offered him and on March 9, 1860, the formal "induction" took place. It gave him an opportunity for teaching and research but he was without a hospital service. After fifteen months he received the appointment as surgeon to the Royal Infirmary but it was not until November, 1861, that he performed his first operation in Glasgow. He was not idle while waiting for the surgency. He had prepared the article on "Amputation" for "Holme's System of Surgery" and he had devised a tourniquet for controlling the flow of blood through the abdominal aorta, especially in connection with amputation of the lower extremities.

In June, 1864, the chair of professor of systematic surgery in the University of Edinburgh became vacant by the death of James Miller; Lister became a candidate for the position but did not receive the appointment. This was a disappointment as Lister preferred the life at Edinburgh and the association with Syme to the condition at Glasgow and neither he nor his wife were happy there.

About this time the seriousness of wound infection was receiving considerable attention. Statistical studies had been made to compare

the results in various parts of Europe and America and all were disappointing. No method had been employed to prevent this dreaded "wound infection", the cause of which was not known. Antiseptics were known and used, but all, except chlorinated soda, with little success. This substance had been used by Semmelweis. His work had only been published in 1861 and was not well-known. Of those who knew of his work very few accepted it. Carbolic acid had been discovered in 1834 by Runge, and it was not until 1863 when Jules Lemaire wrote a book about it that it attracted much attention. He accepted the "germ theory" as the explanation of putrefaction and he used carbolic acid in various forms in the treatment of many medical and surgical diseases. Lister knew nothing of this work until his attention was called to it in 1867, after his papers "On the Antiseptic Principle in the Practice of Surgery" had appeared.

In 1865, Dr. Thomas Anderson, Professor of Chemistry, called Lister's attention to the work and writing of Louis Pasteur which dealt with fermentation and putrefaction. He immediately saw the important bearing this might have upon the problem of suppuration and wound infection. He learned from Pasteur's work that putrefaction was similar to the process of fermentation, that it was brought about by the growth and activity of microscopic organisms similar to those causing fermentation. This was a startling revelation, for, if it were true, the mystery of wound infection would be cleared up. Lister considered the air as a source of infection, but in the treatment of a wound he recognized the need of destroying the germs already in the wound and that it was equally important to purify his hands and instruments and any other material likely to come in contact with the wound.

It occurred to Lister "that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles. He considered carbolic acid to be the most practical for his clinical experiments. Dr. Thomas Anderson, Professor of Chemistry, gave him some crude carbolic acid and with it he carried out his experimental treatment of compound fractures.

In the spring of 1866 he had occasion to treat compound fractures and establish his principle. It was gratifying for him to realize, in the way of healing of wounds, what he

had anticipated. Cases which had previously suppurated or developed hospital gangrene healed promptly. His method was to cleanse thoroughly the surface of the broken limb. Then he would squeeze out all clots that could be loosened from the wound. With a piece of lint soaked in undiluted carbolic acid the wound would be carefully swabbed. Another piece of lint soaked in the carbolic acid was used to cover the wound and over this a piece of black tin was placed to prevent the evaporation of the acid. His object was to have a dressing which would prevent the growth of microbes and at the same time be non-irritating. The first dressing did not fulfill all these requirements because the acid produced sloughing. A mixture of carbolic acid and linseed oil was tried but did not prove to be satisfactory. He then made a dressing of ordinary putty but in the linseed oil which he used to mix with the carbonate of lime he mixed carbolic acid in the proportions of one to four. After a sufficient number of cases had been treated the method of treatment was published in *Lancet* in the spring of 1867, the title being, "On a New Method of Treating Compound Fracture, Abscess, Etc., with Observation on the Condition of Suppuration." He very shortly published another paper "On the Antiseptic Principle in the Practice of Surgery." The publication of these contributions immediately caused much comment and controversy, the storm of protest being led by Sir James V. Simpson. It was difficult, it seems, for most of the surgeons of that day to make a distinction between a "carbolic acid treatment of a wound" and a "new antiseptic principle that had been established." The principle:

Killing all microbes which were in the wound.

Killing all microbes which were on surface near the wound.

Apply a dressing which would prevent the growth of microbes in the exudate from the wound.

Washing surgeons' hands with antiseptic solution.

Washing all instruments with antiseptic solution.

Washing all utensils with antiseptic solution.

Up to this time the long ligatures with ends hanging out of the wound were still in use. These ends were left hanging out so the knot

could be pulled out of the wound when the tissues to which it was tied sloughed. Lister found that with the antiseptic method the ligature could be cut short and buried. Later he introduced catgut as a substitute for silk and linen. He found by his experimentation that the catgut was absorbed but that it was replaced by a fibrous tissue so that in ligating an artery the obliteration of the vessel would remain after the absorption of the catgut. This was proven by experiments upon a calf while at Upton during a Christmas holiday.

Lister's next thought was the performing of operations under antiseptic conditions. To accomplish this he developed a carbolic acid sprayer to destroy the bacteria in the atmosphere in the neighborhood of the operative field. At first he used a hand spray which was operated by several assistants during the operation. This was called the "donkey engine". Later he perfected one that was operated by steam. In addition to this precaution the skin of the patient, the surgeon's hands, all instruments and utensils were washed with the carbolic acid antiseptic solution.

It was about this time that one of his sisters was found to have a malignancy. Lister realized the danger of the disease and also the danger of operating under the conditions which then existed. Having the greatest faith in his own method and confidence in his ability he decided to operate upon her himself. It was a great ordeal for him but the operation was satisfactorily performed. The recovery of his sister was rapid and the source of much gratification, for not only was the method of operating new but also the operation itself.

Lister found that the antiseptic mixture of carbolic acid caused irritation of the wound, so after treating a wound or performing an operation he applied what he called a protective. Many substances were used and many hours spent in experimenting for a suitable covering. Finally he developed and decided upon the use of oiled silk covered with copal varnish and coated with dextrine and starch. This "protective" was a dressing placed in contact with the wound to "exclude the antiseptic". Once the wound was thoroughly treated with the antiseptic he advised that it "be let alone". The complete dressing consisted of "an antiseptic to exclude putrefaction, with a protective to exclude the antiseptic."

Drainage of wounds was commonly employed but the material for drainage was lint. Chassaignac, in 1859, had used rubber tubes for drainage of abscesses. Lister introduced them for the drainage of recent wounds in 1871. While in Scotland this year, Queen Victoria developed an axillary abscess. Lister was called by his friend, Sir William Jenner, to incise it. He at first used a piece of lint for drainage, but he found upon removing it the next day, that it had plugged the wound, so he used a rubber tube and obtained adequate drainage.

Following this he again took up the study of the ligature. His first method of preparing the catgut was by soaking it in a strong solution of carbolic acid. This method was not quite satisfactory and it was difficult to find one that was. The subject continued to interest him throughout his life and it was not until 1906 that he perfected his final process of treating the gut with chromic sulphate and corrosive sublimate.

In the spring of 1869 Mr. Syme had a paralytic stroke. In the summer he resigned the chair and, on August 18th, Lister received news of his election to the professorship. The move to Edinburgh was in October of that year and he remained until the fall of 1877. While Professor of Surgery at Edinburgh, he conducted many investigations on wounds and infections, repeated many of Pasteur's experiments in the growing of bacteria, and published a number of papers. This was in addition to his teaching, operating and consulting.

Lister's work was not received well by the surgeons of the British Isles. In France it was only followed by a few and the first published account was in 1876. This was by Dr. Just Lucas-Championniere. The first German surgeon to adopt the method was Thiersch of Leipzig. He was followed by Volkmann and von Bergmann. In 1876 he visited the continental clinics and saw his principle being carried out in most of the large hospitals in Germany but not elsewhere. In America the work of Lister was not well-known and did not receive much attention or arouse much interest until the principle was explained by Lister in his address at the Medical Congress at Philadelphia in 1876.

On February 10, 1877, Sir Wm. Ferguson, Professor of Clinical Surgery at King's Col-

lege, London, died. Lister became a candidate for this appointment but it was given to Mr. John Wood. However, an additional chair of Clinical Surgery was created and Lister was elected on June 18th.

Lister had been lured to London by visions of a professorship in one of the large medical schools, the opportunity to teach his methods in the city of London to a great number of students and also be a consulting surgeon. However, his return to London was to a small class and to a small surgical service. He began about this time to reap the rewards of his contributions to surgery. Many invitations and requests to address the leading scientific societies in England and continental Europe were received. This gave him an opportunity to appear before the most prominent scientists of the day. Honors were showered upon him. Lister had been Surgeon-in-Ordinary to the Queen of Scotland. Soon after he came to England he was appointed Surgeon-in-Ordinary to Her Majesty. In 1883 he was made a Baronet.

In 1890 he delivered an address at the Berlin Congress which followed the address by Virchow and was followed by the address of Koch. The presence of these three men made this a great occasion and it was at this Congress that he met the Professor Baccelli, who informed him that his effigy was to appear on the tympanum of the Policlinic Umberto I at Rome. In 1892 Lister attended the Pasteur Jubilee at the Sorbonne in Paris.

The retiring age for the professors at King's College is sixty-five and in 1892 Lister's term of service automatically ceased.

In 1893 Lister and his wife went to the Italian Riviera for a holiday. While there, Lady Lister developed acute pneumonia from which she died in a few days. His last days without his wife and without his work were rather sad and uncolorful, but he had many late honors conferred upon him and many of his friends kept in close touch with him. In 1897 he was elevated to the peerage by Queen Victoria. Almost to the end he was interested in the scientific progress of surgery and would freely discuss it with those who came to see him.

In the latter part of 1909 his sight and hearing became much impaired—he could not read nor write. He dictated many letters and liked to have books and papers read aloud to him.

Towards the end of the year he was confined almost entirely to his bed, but occasionally could sit in a chair. During the next two years there is little to record of his life and on February 10, 1912, he died.

We see in Lister's passing the closing of a truly epoch-making era, and with it the dawn of modern surgery. It was he who brought to a focus the knowledge gained by his predecessors and contemporaries concerning microbic activity, and then from his researches evolved principles which were courageously applied in his own operating rooms and proven true. His acumen, with his untiring search for the truth, has left to us an heritage of great value.

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SOME FEATURES OF CANCER OF THE COLON AND RECTUM.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

There are certain general principles that appear to underlie cancer of the gastro-intestinal tract,—or of any region. The direct cause of cancer is not known, but the direct cause of the bacteriological diseases cannot be said to be known. Tuberculosis, for instance, is due to the bacillus of tuberculosis, but we are ignorant of what produces this bacillus. It does not seem probable that cancer is due primarily to bacteria, though doubtless bacteria may play a part in its development, just as many irritating agents do. It has been well established, for example, that painting the ears of certain rabbits or mice with coal tar, if repeated sufficiently, will initiate a neoplasm that has all the clinical signs and symptoms of malignancy and will metastasize. After the irritation has induced the cancer, no further treatments with tar are necessary. Tar acts as an irritant. In the same way sores about the mouth, particularly irritation from smoking, or frequent trauma from jagged teeth, induce malignant cell growth; even though injury to well stabilized tissue, as the palms of the hands or soles of the feet, does not result in cancer. In like manner, one of the prominent causes of cancer of the colon or rectum is papillary or adenomatous growth. It is well known that papillomas or warts are caused by irritants and a benign papilloma of the colon is often a stage between the original irritant and the malignant growth. It seems doubtful if any cancer originates directly as

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a primary lesion without the intervention of a benign growth or an inflammatory or irritating lesion.

Certain individuals have more inhibitive power against the overgrowth of cells than others. When this occurs the ulcer or papilloma will probably continue benign, and it is this inhibitive power that makes the hereditary feature Maud Slye has so brilliantly demonstrated in mice. In human beings it may be either present or lacking. If it is lacking, the individual will probably develop cancer not because of inheriting malignancy, but because of inheriting a deficiency in inhibitory control of cell over-growth.

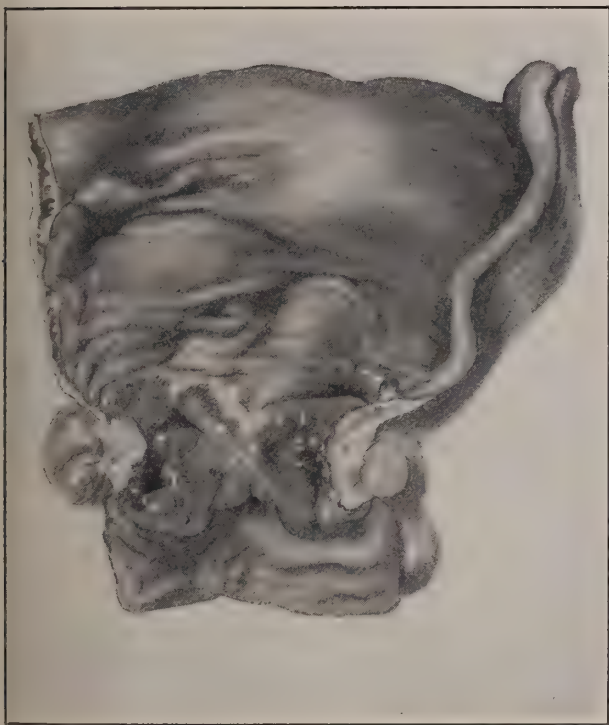


Fig. 1.—Drawing of carcinoma of sigmoid removed from patient, Mrs. M. H. DeH., aged 53. The family history was negative for cancer. Symptoms began only three months before admission, with gas, severe pain, and passing mucus and blood after taking castor oil. The patient entered the hospital with symptoms of obstruction. She had lost 35 pounds in weight. Operation April 18, 1923, was resection of sigmoid. After a somewhat stormy convalescence she recovered. When last heard from two years and four months after operation there was no evidence of recurrence.

Cancer of the stomach claims more victims by far than cancer of any other organ of the body. The last statistics from the registration area show that in approximately 100,000 deaths from cancer in 1924, about one-third were from cancer of the stomach. This is doubtless because cancer of the stomach may

sometimes appear without previous symptoms of consequence and when attention is called to it the disease is already far advanced. Then, too, there are other cases of cancer of the stomach that develop from peptic ulcer of the stomach. When a large peptic ulcer is treated medically, the physician has a very grave responsibility because of the possibility of malignancy developing from gastric peptic ulcer, whereas when peptic ulcer is in the duodenum there is but little chance of malignancy developing.

Cancer of the colon or rectum, while not so frequent as cancer of the stomach, usually gives earlier symptoms and the diagnosis is consequently prompter.

Cancer of the colon or rectum occasionally occurs in young adults, but it is more frequently found in those over thirty-five years of age. There are no classical symptoms. Sometimes there is blood in the feces. It may develop as a mass around the cecum that is supposed to be inflammatory exudate from an appendix; occasionally when the abdomen is thin the cancer is first indicated by a movable almost painless lump somewhere in the region of the colon. Often the first sign is intestinal obstruction. Frequently cancer develops from a benign adenoma or papilloma in the colon or rectum. In the rectum, early hemorrhage or discomfort is so frequently attributed to hemorrhoids that digital examination may not be made. A thorough digital examination of the rectum will go a long way to clearing up a diagnosis of a rectal lesion, and it is even more important than examination with the proctoscope, though visual inspection should not be neglected.

When cancer of the colon is suspected, a roentgenologic examination should be made, preferably with a barium enema. If the growth is in the rectum and can be reached with the finger, there is no occasion for a roentgenologic examination, which in the colon, however, is important. If the barium is given through the mouth, there may be an accumulation on the oral side of the cancer which will produce obstruction; whereas this contingency is avoided by using a barium enema. The discovery of a mass along the region of the colon and the passage of blood in the bowel movement should always receive serious consideration, especially when the patient is in the "tropic of cancer". The Wassermann reaction should be obtained, because not infrequently a gumma appears in the sigmoid

and upper rectum. It is, of course, possible to have cancer in the presence of syphilis, but with a large mass in the sigmoid and a four-plus Wassermann, there may logically be the presumption of a syphilitic gumma. If the growth can be seen through a proctoscope and there is doubt about its character, a small margin of it may be snipped off with scissors or, better still, with the electric cautery, and examined by frozen section. The gumma of syphilis is more likely to be massive and infiltrating, with the patient in otherwise fairly

marked anemia even when there is no bleeding.

These features serve to make a correct diagnosis in the majority of cases, though there are special cases that are even still more puzzling, particularly when the growth is out of reach of the proctoscope or the sigmoidoscope.

Having determined the diagnosis, the only treatment that offers a prospect of cure is operation. To be sure, X-ray and radium are very helpful in the treatment, and often cause a marked recession of the growth and render an apparently inoperable cancer of the sigmoid or rectum operable. These agencies should by no means be neglected, but on the other hand it is unwise to trust to radium or X-ray alone in a cancer of the colon or rectum that can be removed by operation with a reasonable prospect of cure. I have had two cases of cancer of the rectum in which the beneficial result of radiologic treatment has been manifest. In one (Mrs. F. M.), the patient had had cancer for three years before coming to operation for obstruction of the bowel. There had been masses palpable through the thin abdominal wall that seemed to be metastases. She was treated intensively by X-ray by Dr. Fred Hodges for about one year before she came to me, but eventually obstruction occurred. On September 29, 1924, I operated upon her for obstruction and found no evidence of the masses that were previously felt. The cancerous growth was limited to the rectum, although the symptoms had been present for three years. Evidently the roentgenologic treatment had caused the metastases to disappear. A radical operation was done, making an artificial anus in the colon and extirpating the rectum. The patient was comfortable for about one year, but eventually died from recurrence.

Another case, (Mr. O. E. E.), was operated upon at a large Northern hospital in July, 1924. The cancer of the rectum was extensive and appeared inoperable. An artificial anus was made in the left side, and radium emanations were implanted into the growth in the rectum. Three and a half months later the patient came to me and I operated, removing the rectum from below. The growth had evidently receded because of the implantations of the radium. Part of the prostate and most of the seminal vesicles were removed in an extensive extirpation. This was



Fig. 2.—Drawing of carcinoma of sigmoid removed from Mr. C. A. McG., aged 50. The family history was positive for cancer. The symptoms began nine months before admission to hospital, with nausea, loss of appetite and loose stools. There was no noticeable loss of weight. The operation, on July 11, 1925, was resection of the terminal sigmoid with end-to-end union. When last heard from, one year and nine months after operation, he was in good health with no recurrence of the cancer.

good condition,—whereas with an extensive cancerous growth the patient's constitution would usually be more affected.

Cancers of the colon, particularly of the cecum and right colon, seem prone to cause a

about three years ago, and at present the patient is free from recurrence and doing his daily work. Such a case could not have been operated upon without the previous radiologic treatment.

quickly as cancer of the stomach; and consequently operation may be done with much more hope of cure, even in fairly advanced cases. This is illustrated by a patient (Mrs. S.), who had noticed a palpable mass which



Fig. 3.—Drawing of carcinoma of rectum removed from Mr. J. D., age 60. Family history was negative for cancer. Thirty years ago patient had had a fistula-in-ano which was operated upon. Three years ago an ulcer appeared in the rectum, for which he was treated. The size increased. He had been given radiologic treatment. There was intense pain, and a discharge of small amount of blood. The growth in the rectum and around the anus was extensive. He was operated upon by the combined method on February 5, 1927, and the operation was followed by transfusion of blood. Four days after operation he became unconscious with very rapid pulse and symptoms somewhat resembling meningitis, and died two days later. Necropsy showed no infection in the superficial abdominal wound and no peritonitis, but a deep abscess and foul pus in the depth of the abdominal wound in the preperitoneal tissue.

On the other hand there are a few case where radium does not benefit and where the discomfort from its intense action is very marked.

Cancer of the colon does not metastasize so

gave symptoms for about a year before she consulted me. It must have been present for some time before this. On operation the transverse colon, which contained a cancer, was excised. She made a satisfactory recovery, and

when last heard from, two years after operation, was free from recurrence.

The operation to be done depends to some extent upon the location of the cancer and also upon the type of the growth and of the individual. A very cellular, rapidly-growing

easy access to the vessels of the mesentery. Implantation of the stump of the ileum into the stump of the remaining part of the colon is a satisfactory procedure. Often insertion of a small catheter in an oblique enterostomy about four or five inches from the anastomosis



Fig. 4.—Drawing of carcinoma of rectum removed from Mr. L. N. L., age 65. The family history was negative for cancer. The patient first noticed a protrusion from the rectum two years before admission. This increased, and there was occasional streaking of fecal matter with blood, marked constipation and ribbon-like stools. There was some loss of weight. Operation by combined abdominal and perineal excision was done on April 28, 1926. There was some shock and the patient was transfused. He made a satisfactory recovery, and when last heard from several months after operation he was in good condition with no sign of recurrence.

carcinoma is not often found within the colon and rectum, but when it does occur, recurrence after any operation would be highly probable.

In excision the cecum or ascending colon should be thoroughly mobilized by incising the outer layer of its mesentery, so rendering

promotes comfort and adds to the safety.

In cancer of the transverse colon, care must be taken about the nutrition of the bowel wall. In this region union is difficult to obtain, because of the well known tendency of the margins of the anastomosed segments opposite the

mesentery to undergo necrosis. When either an end-to-end or a side-to-side method is used, the technic of Kerr should be followed as far as possible so as to prevent infection. Here the bowel is clamped at the proposed site of resection and divided with the electric cautery. A basting stitch buries each stump, and they are then brought together and sutured. After the suturing, the basting stitches are removed. When there is much doubt about the nutrition of the involved bowel, or particularly if the patient is fat, it would be best to close the stumps by tying the two ends of each basting stitch together, folding in the stumps still further by another suture, and then do a lateral anastomosis.

In resecting a cancer of the sigmoid, the end-to-end method according to the technic of Kerr can be used provided there is not too much fat. If fat is abundant a lateral anastomosis should be employed.

In cancer of the rectum, except in the mildest types, I have abandoned any type of operation except radical extirpation. Here there is somewhat more access to the lymphatics than in cancer of the rest of the large intestine, and when there is a recurrence after an incomplete operation the condition is usually hopeless. Then, too, an operation in which the sphincteric apparatus is permanently injured results in even more annoyance to the patient if the natural site of the anus is left than if a satisfactory artificial abdominal colostomy is done.

After opening the abdomen a little to the left of the midline, the liver and all the contents of the abdomen are explored with the hand. If the liver appears to have nodules or if the metastases in the lymph nodes are extensive, no operation is done unless there are obstructive symptoms, when a colostomy is performed. If the growth has infiltrated well into the base of the bladder and is fixed, it is of course unwise to attempt any radical procedure but radiologic treatment may help, as has been mentioned. If it proves to be operable, the outer layer of the mesentery of the sigmoid is incised and the incision is carried around the rectum toward the base of the bladder in the male or toward the uterus in the female. The inferior mesenteric artery is doubly clamped and divided. The tissues are stripped up, beginning behind and going down toward the coccyx, keeping close to the hollow of the sacrum. The bowel is divided and

the stumps are closed according to the technic of Kerr. The upper stump is brought out through a short incision about two inches to the left of the main incision and is fastened to the fascia and skin with a few interrupted sutures of catgut or linen. It is left closed for several days. The lower end is shoved into the pelvis and the peritoneum is sutured over it. The abdominal wound is closed. The patient is placed in the dorsal position and the bowel is excised from below, after closing the anus with a purse-string suture. All of this is done at one sitting. In these days when intravenous injections of glucose in Ringer's solution can be carried out during the operation, shock can usually be avoided; and if necessary transfusion of blood can be done later. With methods for preventing shock there seems to be less excuse for making a two-stage operation, which is not only trying upon the patient but may permit infection and spread of the cancerous growth.

This operation has in my hands been quite satisfactory. The patients soon learn to control the artificial anus with but little discomfort.

A TABLOID DIP INTO HISTORY.*

By FRANK HANCOCK, M. D., Norfolk, Va.

"That history maketh a young man to be old without either wrinkles or grey hairs; privileging him with the experience of age without either the infirmities or inconveniences thereof. Yea, it not only maketh things past present, but enableth one to make a rational conjecture of things to come. For this world affordeth no new accidents, but in the same sense wherein we call it a new moon, which is the old one in another shape; and yet no other than that hath been formerly. Old actions return again, furbished over with some new and different circumstances." (Fuller).

It is interesting, if not singular, as the collective studies of historians, archæologists and philologists have revealed that the myths, superstitions, laws, folkways, of all primitive people were essentially the same, Scandinavian and Polynesian, Celtic, or Roman.

Perhaps it was inevitable considering the joint origin, and the further fact that these tribes only separated after they had acquired a commonality of ideas.

Specialization and culture came afterward,

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resulting in different races, customs and languages. Primitive man did not differ materially from pre-historic man, a savage sunk in animalism. The natural was to him the supernatural; so he worshipped trees, stars, winds and rivers, dogs, apes and oxen. He faced the wild animal world with his arrow heads, which were exactly the same shape wherever found,—in the river depths of Palestine, Egypt, Siberia, England or Alaska.

But disease baffled him. He thought it an evil spirit and, as such, was to be cajoled, placated by burnt offerings, and sacrifices.

The germ of that idea is with us still. We propitiate offended diety and appeal to kindly spirits to intercede for us in Heaven.

Later this primitive man believed that his human enemy possessed supernatural powers, and that he must ward these off with appropriate spells and sorcery similar to those employed by his enemy.

Nightmares, with their terrifying phantasms led him to believe in the existence of a spirit world of animals, and men, apart from his daily life, of a soul separate from his body. Some of these spirits were offended and sought to injure him.

Always there have been certain keen intelligences who have benefited by these superstitions; hence, the witch doctor and fetish workers practicing magical therapeutics, empirics, and suggestion.

This early man's knowledge was limited, but not contemptible. A number of our important remedies date back to these times. In his medicine pouch he carried talons of beasts of prey, tarsal bones, snail's shells, a drum and rattle to make a bewildering noise. He also carried in these aboriginal days, purgatives, emetics and vermifuges. They did more. Certain tribes, the Ashantis, for instance, practiced inoculation against small-pox, rubbing the contents of a pustule into a skin abrasion. This was likewise done by the Hindus, Chinese and Persians. They cupped, blood-let, and trephined. There, with their stone implements, the Hebrews in the desert circumcised their children.

These primitive people transfixed the edges of wounds with thorns, and drained abscesses with bamboo—ten, twenty, thirty thousand years ago. Certain ants were induced to seize both sides of a wound with their sharp head nippers, in Brazil. Their bodies were then

cut away; one ant after another being used in this way until the wound was closed. Was such ingenuity a thing to be ashamed of, or to be laughed at as crude or crass, or as done by mountebanks?

The hieratic writings of the Egyptian Papyrus—the Ebers-papyrus—revealed an extensive materia medica,—opium, coca, cinchona, eucalyptus, sarsaparilla, acacia, capaiba, guaiac, galup, podophyllin. They also used powdered insects, snakes and worms, as therapeutic resources.

Our own Indians treated rheumatism with arbutus, gave lobelia for colds, used golden seal and wild sage tea. They treated scurvy with fresh infusions of the barks and leaves of trees.

Ritual emesis and catharsis were used by the North American Indians just as they were by the Babylonians.

Surgery remained essentially primitive up to the time of anesthesia and antiseptics. Our ancestors used fish teeth, or sharpened flints, to let blood or open abscesses.

Trephining goes back into pre-historic times. It appears to have been about the first operation ever done by man upon man. Headaches, mental disturbances and trauma were treated in this way.

Cupping was done by means of animal's horns. It is thought that the hemorrhage from wounds, and the periodic recurrence of menstruation, suggested to them the advantages of blood letting in disease, and hence the practice.

The ancient Hindus performed almost every major operation except the ligation of arteries, operations that were preceded by intoxicants and narcotics.

The use of a soporific potion as a substitute for anesthesia goes back to remote antiquity—poppy, Indian hemp, mandragora. Rachel sought the latter for Leah, perhaps to ease the pangs of child-birth. In the fourteenth century a mixture of these ingredients was prepared for surgical anesthesia by Hugh, of Lucca, and his son, Theoderic.

Alcohol should be added to this list given us by the Arabians.

Mankind came marching into history, providing himself with an artificial paradise, through narcotics and intoxicants (alcohol, opium, and hashish). He also knew of tea, coffee and tobacco.

Mesopotamia was the nurse, if not the cradle

of all culture. The seeds of it were sown by that great race, the Sumerians, some sixty centuries ago. They invented cuneiform writing. They were conquered by the Semitic Babylonians and Assyrians, who further developed morals and learning. Then the torch of civilization passed to the Indo-Germans.

Quick silver was used by these Indians for syphilis, but mostly after the Mohammedan era. It was called "The King of Metals."

The earliest known pictures of surgical operations were discovered by Max Muller, near Memphis, on the door-post of a tomb. The Egyptians did not open the body, but these pictures gave clear representations of circumcision, operations on the neck, etc.

The first physician to arise out of the mists of antiquity, Imhotep, 4500 B. C., was worshipped at Memphis as a God.

Among the contributions of the Egyptians to medicine were simple clothes and cleanly habits,—with which their climate had something to do.

In this fertile spot neolithic man first raised himself above his kindred races of the Mediterranean basin. By the accidental discovery of copper, Egypt "forged the instruments that pulled civilization out of the slough of the Stone Age." Many of man's most distinctive and highly cherished beliefs have their origin here. Records preserved in stone show the picture of man's search after justice and the recognition of the rights of the individual. It was there that "The faith that looks through death" was developed. But it was not here that religion and medicine became dissociated.

Osteo-arthritis was the most prevalent of diseases among the Egyptians, as pictures show. Evidences of tuberculosis, rickets and syphilis were lacking.

In the contemporary Mesopotamian civilization, science reached a higher level than in the valley of the Nile. Early observers were impressed with the size, importance, and richness of the blood supply of the liver. They spoke of the liver as we do of the heart, believed it to be the seat of life, and of the soul.

The influence of the heavenly planets upon man's destiny was the contribution to medicine of the Assyrians and Babylonians,—that the stars fought in their courses for and against him. Also, they and the Hebrews believed in divination. The elders of Moab and Media came to Baalman with the rewards of divination in their hands. Joseph's cup of divination

was found in Benjamin's sack. The King of Babylon stood at the parting of the ways and looked at the liver and prognosed the results of a forth-coming war. The liver was the mirror in which God's mind was reflected in those times. It was the sole organ of divination for hundreds of years.

Hepatoscopy was also practiced by the Etruscans, Greeks and Romans, but it early degenerated into meaninglessness.

It does not appear from the Bible that the Hebrews were impressed with astrology, nor the Greeks particularly, as far as medicine was concerned. However, we have some words of astral significance from the Greeks—disaster, for instance.

The Hammurabi code—2000 B. C.—was supposed to have been received from the Sun-God by the King (as Moses received the law from the God of the Hebrews).

This extraordinary document is a black diorite block eight (8) feet in length, with 2,540 lines of writing, of which 1,114 remain surmounted by the figure of a king receiving the law from their God.

GREEK MEDICINE.

Greek medicine appears on the horizon of history, carrying what there was of service and of science from the older Mesopotamian and Egyptian. The remains of Oriental literature were linked with the matchless collection of writings of Hippocrates. In it is the beauty and entire freedom of Hellenic thought.

That was the germ of all future development, foreshadowing of future tendencies. Thus oriental thought reached its apotheosis in Greek philosophy and art.

It was a part of those mighty startling influences that led in to the Golden Age of Greek culture—such prodigality of intellect as the world has never seen. The Christians in their too great zeal later erected a Bastille where all thought was confined. In this great era of the Greeks, science achieved its independence from religion, tradition and dogma.

No hierarchy had yet arisen to rule and govern the spiritual and thinking life of mankind as life was then lived by the Ionic and Doric Greeks.

There was some hegemony upon the part of the Delphic oracle in the Hellenic world, but it was not enough to stifle science. The Persian King hoped to secure from this Delphic priesthood the political service, spiritual authority

rendered him in the conquered countries of Egypt and Judea, but Plataea and Salamis prevented this, and Hellas was not submerged in religious dogmatism. The Greeks secured much knowledge from the older eastern natives of their drugs and methods. This raw material of experience was elaborated and individualized by them.

Greek medicine then rose above mere formal dogma, and empiricism creating a synthetic organism of medical science.

It was at Crotona that Pythagoras founded a school whose influence has come down the centuries stimulating knowledge and accelerating thought. One of the distinguished members of this Crotonian school, Alcmeon, first traced the spinal nerves to the brain and recognized that organ as the seat of the mind.

No study of the Greek school of medicine could be competent that did not include Empedocles, who introduced the theory of the four elements, fire, air, earth and water.

Upon this later was engrafted the doctrine of the humors which dominated medicine from the days of Hippocrates almost to our own. Empedocles foreshadowed Darwin's theory of evolution in at least a fantastic representation of "The Survival of the Fittest."

Magical powers were ascribed to Empedocles. He recalled Pantheia to life after her trance of 30 days. Democritus pre-visualized the atomic theory. These were wild speculations, it is true, but based upon an amazing intuition.

At this time, six hundred (600) years B. C., the Greeks had a well-defined public health service. Democedes, whose remarkable story as told by Herodotus, was perhaps the first medical man to receive a regular salary from the City of Athens for public work.

Asklepios, patron saint of medicine, was for more than a 1,000 years "consoler and healer of men." It is his figure with the serpents that appears on all our seals and charters. The natural dread and awe of humans for the snake made it a symbol of supernatural power early in man's career. At one time three or four hundred temples were dedicated to Asklepios.

The first regularly organized physicians were the Asclepiades, who rose to power and dignity in the century before Hippocrates. They had a strict organization, expressing itself in certain ordinances and formalities.

Medical ethics began there, on the assumption

that the Asclepiades were originally a band of brothers claiming descent from the divine father of medicine. They guarded their art as a family inheritance. Under certain circumstances strangers were admitted to this spiritual union of physicians, where they learned the venerable traditions, the purity of transmitted teachings.

They carefully wrote histories of patients. Charlatans worried them, especially a group called gymnasts whose practices were not dissimilar from the practices of certain sects practicing today.

Pythagoras was the greatest of the philosophers who exercised influence upon medicine. Greek medical literature may be said to have started with him.

I wish to speak of Hippocrates and his writings. He was born in Cos, 460 B. C., and died about 375 B. C. "Admired by all, understood by few, imitated by many, equalled by none, he will remain the master of medicine for all time." He did not believe with the priests, practicing medicine at that time, that disease was of celestial origin. "No god ever befouled a human body," he said. Through all of his writings a humanism runs. He believed with Prodicus that "that which benefits human life is God." Some of his hypotheses were fantastic, based as they were on the dissection of animals.

Plato held Hippocrates in high esteem, and appreciated his idealized ethics, and his far-seeing views.

His writings were edited in the third century B. C., and collectively they were called *Corpus Hippocraticum*. This was done by Alexandrian scholars under orders of the book-loving Ptolemy.

Some of these writings are of course apocryphal, in the sense that they were not all written by him. Whatever he wrote, there is no question of his historicity, no doubt that he diverted medical investigation from devious speculation to the straight road of unbiassed observation, and gave to his profession a sense of dignity and independence it had never had before.

Plato and Zenophen gave different impressions of Socrates, just as did the successors of Hippocrates, but they were all imbued with his genius.

His conception of the medical vocation, and his method of medical thought were as true then as now. We cannot narrowly define the

knowledge and art of his school, but the monumental figure of this great man will remain forever upon the heights of medical thought.

The fundamental differences between medicine as practiced by Hippocrates and those before his day is impressively plain and makes him an obviously immortal figure, who will survive the vicissitudes of time.

He found, upon his coming, a guild of Asclepiades. He left his profession free of all priestly entanglements and transcendentalism.

He distinguished essentials from accessories. "He not only looked but he saw. His tendency was ideal, but his perception was real."

The first great medical school of antiquity was the Alexandrian school about 300 B. C. There were laboratories, clinics, libraries. Here the study of the structure of the human body marked its full development, till then barred everywhere by religious bodies.

The Ptolomies gave full permission for the dissection of the human body, and perhaps vivisection.

The two great members of this school were Herophilus, and Erasistratus. Herophilus gave us the Calamus Scriptorius and the duodenum. Erasistratus almost described the circulation. He broke definitely with humeral pathology.

They described the valves of the heart; recognized the significance of nerves, which had been confounded with tendons, described the great varieties, sensory and motor.

Galen, the greatest name after Hippocrates, was born in Pergamon 130 A. D., and died 201 A. D. Observer, experimenter, philosopher, he practiced psycho-analysis. Called to see a great lady suffering with intractable insomnia, he quizzed her closely and decided that her malady was due to her love for a certain dancer, Palydes, because he discovered that her pulse quickened when this dancer's name was mentioned. Galen could only dissect apes and pigs. Times had changed since the days of Herophilus. The broad minded Ptolomies had been succeeded by the promiscuously religious.

He was within an ace of discovering the circulation of the blood. It is difficult to understand how he missed it.

He showed that the arteries contained blood and not air, as had been taught by Erasistratus, and Praxagoras. He knew that the heart valves determined the direction of the blood that entered and left the organ, but he failed

to understand that the heart and not the liver, was the pump. He spoke of veins as "a conduit full of blood with a multitude of canals, large and small, running from it, distributing blood to all parts of the body." That lacked very little of Harvey's later description of the circulation.

He had a commanding talent; was a master builder in the realm of thought. Still he did not have Hippocrates' originality or freedom of thought.

Galen compared these blood conduits with irrigating canals and gardens. He went beyond Aristotle. He knew that a function of the blood was to maintain heat and that the smoky matter derived from this combustion was discharged by expiration.

Galen demonstrated the function of the laryngeal nerves, motor and sensory functions of the spinal nerve roots. He had great faith in drugs and collected plants from all parts of the known world.

For fifteen centuries he dominated medical thought as Aristotle did in the schools. He was the medical pope.

Leonardo da Vinci also, as shown in his illustrated anatomy, the first of such illustrations, was just short of a full conception of the circulation. Certainly his knowledge of muscles surpassed that of any of the anatomists up to the time of Vesalius.

MEDIEVAL MEDICINE—OR THE ERA OF COMA.

As Rome rose to authority, medicine languished for some 600 years. It was only the immigrant Greek physicians, attracted by the growing wealth of Rome, that rescued it from hopeless theurgy. At this time the profession was pitifully inadequate. It returned to its liaison with religion, from which Hippocrates had so long before delivered it.

Desolation had come to medicine as to all civilization. The threads were broken that had connected it with the glory of Greece and Rome.

All that splendid legacy bequeathed to us by the masters had departed. Nothing remained of Athens and Alexandria. Man became again encysted in ignorance and blind superstition "in a muddy vesture of decay." The stream of scientific medicine was lost in the morass of these years. The barbarians shattered the Roman empire to its foundations in the fifth century A. D. In the sixth century a great

plague further demoralized the remains of this once great people.

There is no question, as remarked by Osler, that the philosophy of the Christian religion contributed greatly to the decline of scientific investigation. St. Paul counted "all things dung but to win Christ."

"In seeking a heavenly home mankind lost his bearings upon earth." Only a mystic could understand this situation with full sympathy. Christianity did bring new motives, new interest and new values, into life, but science was not among them. Tertillian said, "Investigation since the Gospel is no longer necessary."

Jerome wrote, "Does your skin roughen without a bath? Who is once washed in the blood of Christ needs not wash again."

Of course, no criticism or reflection is intended here upon the Founder of Christianity. For him are only our love and our tears.

However, the literary matter of the pagan past did not completely fade from the consciousness of mankind. The course of the river of medicine was tortuous and meandering, but it was never completely checked.

There was the famous medical school at Salerno, near Naples.

In Byzantium, from the third century to the fall of Constantinople, there was a continuous effort by medical men to prevent a total eclipse of their profession. Oribisirus, friend of the Emperor Julian, was the most notable of these Byzantines.

He was born at Purgamon, as was Galen, and was so close a follower of his townsman that he was called "Galen's ape."

These Arabians were appreciative of all that was best of the Greco-Roman civilization, particularly the science of it. They arduously cultivated medicine.

Razes and Avicenna were their great contributions to the profession. The latter had perhaps one of the finest intelligences ever vouchsafed to man. He took all knowledge for his province. He was fond of wine and women and came to his end in some dissipation in his 58th year.

Avicenna wrote voluminously, translating the work of Galen and Hippocrates into Arabic. All of his philosophy could not make him moral nor all his physic teach him to preserve his health. His works have been lost. Arabic medicine was then essentially Greek. Their greatest advances were in the domain of

chemistry. The Arabs had well organized hospitals, hospitals that were at once the glory of their civilization. Their science, which exceeded anything in Europe, became transmitted to this occidental world, through the Crusaders.

Mundinus was the first modern student of anatomy. He was a product of the universities that flourished in the thirteenth century, particularly the students' guild at Bologna. These guilds were the preludes to the universities of that century, which sought to meet the educational needs of the age.

In the year 1319 there is the record of a legal procedure against medical students for body snatching, the first record for this gruesome practice. Mundinus' anatomy was a text-book for 200 years.

The quaint illustration shows us the medieval method of teaching anatomy,—the lecturer sitting on a chair reading from Galen, while a barber surgeon opens the cavities of the body.

Arnold, of Villanova, wrote prodigiously on medical subjects, was in constant trouble with the church, and was finally condemned as heretical.

Peter, of Abaro, was the first of a long line of distinguished physicians connected with the great school of Padua. He sought to reconcile philosophy and medicine, came into conflict with the church, was several times before the Inquisition, and escaped the stake only by a timely death.

Pope John XXI was interested in medicine, wrote a number of treatises, and referred in one to "iliac passion," presumably appendicitis.

Roger Bacon, born out of time, was the first man since the Greeks, to understand the importance of experimental science. He had a keen appreciation of what it meant to human knowledge. He was one of the first to point the way to original research, as opposed to the acceptance of authority. Any student of history will acknowledge the debt we owe to this man, because it is overwhelmingly evident that acceptance of authority upon our part was the particular languorous thing that prevented our advancing, as we would have, had we been earlier stirred by Roger Bacon's ferment.

Astrology, an aggressive culture, was practiced universally in these middle ages,—Babylonia, Greece and the Roman Empire,—countenanced by the courts, taught at the universities. Roger Bacon himself believed in the

influence of planets, stars and comets on generation, disease, and death.

Medicine in the Middle Ages represents a restatement from century to century of the facts and theories of the Greeks, modified here and there by Arabian practice. The schools were still bound in slavish submission to Galen and Hippocrates. There was no advance in our knowledge of the functions and structures of the human body. The Arabians lit a brilliant torch (Osler) from Grecian lamps and from the eighth to the eleventh centuries the profession reached a dignity and importance to which it is hard to find a parallel in history.

In the fifteenth, to the sixteenth and seventeenth centuries there was a general renaissance of the world of thought. Theology had been the queen of all the sciences. Learning was now to be the guide to the conduct of life.

Medicine, reflecting this period as it had all other periods, joined in the revolt against medievalism.

Authority was shattered, and the foundation for the study of the functions of the human body was laid. With these advances are associated the names of Paracelsus, Vesalius and Harvey. The first of these made war upon the dogmatism of the schools, and encouraged the study of practical chemistry. There has probably never been a physician subject to such unmeasured abuse and villification. His body, said Fuller, was a sea where the tide of drunkenness ebbed and flowed. He was a mystic, something of a charlatan, but he stood out at all times for independent study and the right of private judgment. He discovered zinc, the various compounds of mercury, and flowers of sulphur. Also, he introduced tincture of opium, having probably learned of it in the East.

Vesalius, of Brussels, grasped as no modern before him had done, the capital truth that, to know the human body, one must know its parts, its fabric,—one of the most achieving minds of the human race.

The Alexandrians created human anatomy, but he for the first time in history explained the entire structure of the human body. His great anatomical work was the "Fabrica"—fabric of the human body. There is described anatomy as we know it. The world has never seen what this manuscript contained since the great Pergamenian had sent his Manual of

Anatomy among his friends. The Fabrica appeared in 1543.

However, Vesalius had no idea of a general circulation beyond what Galen had taught. (It was Servitus who described the lesser circulation).

The publication of the Fabrica shook the medical world to its foundations. He had dared to differ with Galen, Prince of Physicians.

He is said to have been brought before the Inquisition, but was saved by the intercession of Charles V, whose physician he was. Condemned to visit the Holy Land, he died of a fever in 1564.

Vesalius had made the school at Padua the anatomical center of Europe. He was succeeded there by Fallopius, who in turn was followed by Fabricius, who demonstrated the valves in the veins.

Harvey had seen and assisted in these demonstrations at Padua about 1600. He afterward said it was the position of the valves of these veins that induced him to think of the circulation.*

Trained in this great school, William Harvey returned to England and soon thereafter laid down in clear and unequivocal terms the circulation of the blood. It was the foundation of physiology.

The old notion had been that the heart in its motion attracted blood into the ventricles. He demonstrated by experiments, to the contrary, that the ventricular contractions expelled blood, and only received it during its repose. He then demonstrated that the diastole of the arteries corresponded with the systole of the ventricles and that the arterial pulse followed the force, frequency, and rhythm, of the ventricle, and is dependent upon it.

It had not been known before that the pulsation in the arteries was nothing else than the impulse of the blood within them.

He knew that the auricles were the first to move, and the last to die. Hence, for the first time, then, it was stated that the heart was the organ for the propulsion of blood, the very thing Galen could not see.

Harvey did not know how the arteries and veins communicated with each other. Galen spoke of anastomosis. Harvey preferred the idea of filtration.

Galen, Aristotle, and others knew that the blood moved.

Harvey lectured to students at St. Bartholomew's Hospital on the circulation fifteen years before the work was published—*De Motu Cordes*, 1628.

He met with a storm of opposition. "Circulator" was the term opprobriously applied to him. Charles I rallied to his support and made him Court Physician, as other Kings and Emperors had done in the past for great doctors who were being persecuted.

Other important discoveries followed shortly after this:—The pancreatic duct, Wharton's duct, antrum of Highmore, Glisson's capsule, circle of Willis, Haversian canals, and Cowper's glands. Brunner discovered the duodenal glands; de Graaf the Graafian follicles; Peyer described the lymphoid follicles of the small intestines; Stenson the parotid duct.

Swammerdam discerned the red blood corpuscles. He established the medico-legal fact that foetal lungs will float after respiration.

Then came Leeuwenhoek, maker of microscopes, and founder of microscopy. He had a collection of 247 microscopes and 419 lenses which he ground himself. He was the first to describe spermatozoa, the structure of the crystalline lens, and the striped character of voluntary muscle. He saw micro-organisms in the teeth for the first time, and demonstrated what Malpighi had already seen, the capillary anastomosis between veins and arteries.

Thus was supplied the missing link in Harvey's discovery of the circulation.

Malpighi originated histology. His work upon the liver, spleen, and kidney was done with patient fidelity, and his name is preserved in the structures of those organs.

Ambrose Pare (1510-1590) made amputation what it is today by his reintroduction of the ligature, the use of which had been in abeyance since the time of Celsus—25 B. C. to 50 A. D. He was the original aseptist, as Garrison remarks. He first suggested syphilis as the cause of aneurism, and made podalic version a practicable procedure. He is said to have been garrulous and gossipy and to have "had the vanity of self-reference, which accompanies great as well as small reputations."

Thomas Willis first described the hexagonal network of arteries at the base of the brain, which bears his name. He gave the first account of epidemic typhoid fever, and described and named puerperal fever.

This was a great era, this seventeenth century. It was the age of Shakespeare, and Milton, of Vilasquey, and Rembrandt, Bock, Moliere and Newton, Bacon and Spinoza.

With better legal regulations and restrictions, the social position of the physician improved. He arose to some dignity. But the surgeon was still under the ban. In the army he still shaved the officers, and was generally classed with barbers, bath-keepers, executioners and mountebanks. This was in England. In France, the surgeon enjoyed some prestige owing to the fact that Felix, surgeon to Louis IV, relieved that monarch of a fistula-in-ano by operation.

The gradual rise of the surgeons from their lowly plain to the seats of the mighty is something that these erudite ones can take up later. It is an interesting story.

Grocers were the original druggists and continued to dispense drugs even after James I in 1606 incorporated the druggists.

These druggists finally shedded their grocer associates, as the surgeons had done the barbers. Then and there began the age-long controversy between physicians and druggists as to the dispensing of drugs by the latter.

Medical Arts Building.

THEN AND NOW.*

By ZEE V. SHERRILL, M. D., Marion, Va.

At the very beginning of this imperfect paper, which would have been an utter impossibility if I had not quoted freely from different authors, permit me to say that I am greatly embarrassed when I attempt to express my high appreciation of the honor you have so kindly and generously bestowed upon me. You have permitted me to preside over this very worthy group of medical men, and passed by my many errors in silence.

In all candor, no better medical society exists today in the State of Virginia, or elsewhere, than the Southwestern Virginia Medical Society. Whether I am President of this Society out of respect to age, or from being among the first in its organization, or from whatever cause, my appreciation is none the less.

In casting about for a subject for an address, or paper, for this occasion, I have, indeed, been "up a tree," as it were. I finally concluded to

*Read before the Southwestern Virginia Medical Society, at Bristol, Va., September 22-23, 1927.

leave the name until the operation had been performed, and if it is still-born no name will be expected.

Reminiscence is said to be an evidence of age, and if, therefore, I should refer to medical matters of the past, you will naturally and justly conclude that I belong to the class of the "Old School Physician."

I began in a small way to give out powders and home-made pills in the summer of 1887, two years after the birth of our State Board of Medical Examiners. In order to do this, without interference, I located temporarily in Tennessee, where no such restrictions at that time existed. Transportation forty years ago was conducted by horse-drawn vehicles, or on horse-back; the latter was more practical and more economical on account of the bad roads. A rubber tired buggy was considered an expensive luxury, and especially if drawn by a span of horses; the latter method of travel was seldom employed except by the city physician. Occasionally in Richmond one could see the two-horse carriage with the colored driver in livery, and the dignified old doctor, dressed in the conventional black broadcloth suit with high top silk hat, seated in the closed apartment to the rear of the driver.

Formerly—40 years ago—a messenger or runner, was sent for the doctor,—no telephones were in common use, especially in the smaller towns or the country districts. The messenger usually came on horse-back and remained with the doctor until he was ready to return with him to visit the patient. Not infrequently the doctor would remain with his patient overnight, going home the next day, and sometimes, if the patient were very ill, would stay with him several days. Since there were no graduate nurses, the care of the patient depended upon the goodness and kindness of the neighbors, or relatives, and often the doctor played the role of nurse. Several years later the trained nurse came into her own, and her services were, indeed, a benefaction and a blessing to the patient, as well as to the community and to the doctor. The doctor in the olden time was an ever-welcome visitor in the home. He shared with the family the very best they could afford.

At this time (1887) there was not a hospital within the entire boundaries of this Medical Society, including the Clinch Valley Society as well, or within the entire Southwest Vir-

ginia—embracing nineteen counties. Thirty-two years ago the old Roanoke Hospital was established, the first hospital in this entire section except the Southwest Virginia State Hospital for the insane, which was established forty years ago at Marion. Patients in need of an operation were transported all the way to Richmond and admitted to the Retreat for the Sick, or the City Home Hospital. St. Luke's Hospital was opened during 1887. The Lynchburg General Hospital has been established since 1885, and the Marshall Lodge Hospital was opened for patients in 1886. Other Virginia cities having hospital facilities 40 years ago were Alexandria—Alexandria Hospital, established 1872; Norfolk—Hospital St. Vincent, established 1856; Norfolk City Home Hospital, established 1820; the Norfolk Protestant Hospital was opened 39 years ago. The Petersburg Hospital was established in 1886. These hospitals constituted all the hospitals in the State of Virginia except those established by the State for the care of the insane, and by the U. S. Army and Navy,—the former at Fort Meyer and Fortress Monroe, and the latter at Norfolk,—the U. S. Marine Hospital and the U. S. Naval.

There are today in the 19 counties of Southwest Virginia, 25 hospitals with a capacity of 1,058 beds, besides the Hospital for the Insane at Marion with 1,000 beds, and the Catawba Sanitarium, at Catawba, with 325 beds, and Mt. Regis, at Salem, with 65 beds. Virginia has today, besides the hospitals referred to in the 19 counties, 52 other hospitals and sanitariums, besides 3 other State Hospitals for the Insane. These 52 hospitals will accommodate 4,076, and the remaining State Hospitals,—Eastern—1,000; Western—1,500; and Central --2,000.

No State provision was made for the care of our tuberculosis patients until 1909, when the Catawba Sanitarium was established; neither was there any private institution prior to this date for their care and segregation. The Blue Ridge Sanitarium was opened for patients only 7 years ago, and Piedmont Sanitarium for colored patients 9 years ago. The State sanitariums for tuberculous patients will accommodate 631 patients, counting the colored at Burkeville (146). Richmond and Danville each have municipal hospitals for their cases of tuberculosis; these accommodate 92 and 35 patients respectively. Little was known of the

prevention of disease; the germ theory was a subject of scorn and derision for the most part. The tuberculous patient lived at home with his family, sleeping and eating with them, and it was not an uncommon occurrence for whole families to be wiped out with this dread disease.

It was not until 1894 that diphtheritic antitoxin was manufactured and it was several years after this before its use became anything like general. In the days before diphtheritic antitoxin, it was not unusual for several children in the same family to die from diphtheria during an epidemic. In New York city, in 1921, before the use of toxin-antitoxin, there were more than 15,000 cases of diphtheria; in 1926 there were only 5,793 cases, a reduction of nearly 75 per cent. Up to July 1st, this year, 75,000 children in Virginia had been given *toxin-antitoxin*, more preventive treatment than had been given in any one year prior to this.

Typhoid fever is coming to be a rare disease since the more general use of typhoid vaccine; years ago it wiped out whole families.

Malaria, according to Bass, will be eliminated within another decade or two.

Cholera on American soil is a disease of past years.

Small-pox is an unusual disease at present, and usually of a mild type, on account of the almost universal employment of vaccination.

Research work is in progress. Last year the Dean of the Medical Department of the University of Pennsylvania (a great medical school, the oldest in this country, established in 1765) estimated that \$1,000,000 would be utilized for research work alone during the year. The new medical unit soon to be erected at the University of Virginia, to cost one and one-half millions, will indeed be a step forward. The millions for the Medical Department of Duke University will be felt and appreciated by the medical profession of the entire South.

In the early part of the 19th Century there were only three medical schools in the United States, and only two hospitals. There are today in the United States and her possessions 7,194 hospitals with beds for 888,339 patients. There are more than 4,000 laboratories and over 4,000 Roetgen ray departments. (*J. A. M. A.*, March, 1927).

Forty years ago I knew of only one ortho-

pedic surgeon within 350 or 400 miles—he lived in Washington, D. C.; I refer to Dr. A. R. Shands, formerly of Prince Edward Co., Va. Now our great Universities, the great City Hospitals, Free Dispensaries, the special Children's Hospitals, and Convalescent Homes have collected, segregated and rehabilitated cripples by the thousands. Only a few years ago orthopedic surgery was confined to the larger cities; now, orthopedics, as a speciality, is practiced throughout the land. Every State in the Union should provide hospitals to help take care of our half million cripples; some of them have not done so. We are indebted to the Scottish Rite Masons, the Shriners, Rotarians, Kiwanians and other organizations for the interest they have manifested in this speciality, and for helping direct our attention and increasing our interest in these unfortunate cases. We have now numbers of good orthopedic surgeons in several parts of our Commonwealth, of whom we are justly proud.

In 1920, Sir William Osler said the average working life of the English-speaking people had doubled in three centuries; most of this gain, however, has been made within the last half century.

The development of Preventive Medicine has been one of the outstanding features during the last 40 years. Dr. A. J. Crowell, speaking of Preventive Medicine, says, "it is the watchword of the hour and offers the profession its greatest opportunity for usefulness." "An individual may discover the cause of disease; but it is by the combined effort of the profession that its ravages may be prevented." "As a result of organization, co-operation and concentration of ideas and effort, the medical profession stands today single and alone among the professions, in that it is the only one whose daily efforts are expended in an endeavor to destroy the very reason for its existence."

Periodic physical examinations are being urged by the physician of today in order that disease may be arrested before it has developed and the human body impaired. Health Boards have been established, hospitals have been constructed and maintained, Public Health nurses employed, and hygiene taught in our public schools at the instigation of the physician. The Public Health Service of our Government has taken a leading part in sanitary education, in its endeavor to combat disease. Large industrial plants employ doctors and nurses for their

employees and have found that it pays in the amount of productive labor. Life Insurance Companies hold health clinics and distribute health literature. A few of them have sanatoriums for the treatment of their policy holders. Not a few individuals retain their physicians to look after their health the year round.

Recently some of our cities have even established Mental Clinics.

Formerly the graduate in medicine was turned loose on the public with little training in the Healing Art, and often wrought havoc with the patient; now they are required to continue their training as Internes. Formerly—40 years ago and less than 40 years—they were graduated within two years of two sessions of five or six months each. At present, and for several years past, modern medical education demands scientific knowledge as a foundation, and all first-class medical colleges require two years of special college work in addition to a complete four-year high school course before admission. The fact is that at present most of our physicians are graduates from first-class literary colleges before they begin the study of medicine. The modern physician is the best educated man found in any of the professions today. About 30 of our States require at least one year internship in a hospital after graduation before the rigid State examinations may be taken, in order to obtain a license to practice his profession—a wise precaution, indeed. The demand for the well trained physician is now much greater than the supply. Many communities are actually without the services of a modern physician and the need is imperative. The financial remuneration received by the physician may be less than many of the vocations, but the extreme satisfaction and the actual opportunity for aiding mankind is a remuneration far greater than money. The physician must be a true student all his life, since medical knowledge is continually advancing. New scientific facts are rapidly being discovered, and the application of these facts are finding their places in the medical world. Many and important changes, therefore, have occurred in medical matters for the betterment of human welfare, but we are in need of further reform. At present the people of these United States are spending every year \$320,000,000 for patent medicines, which is perfectly good money thrown away.

Maternal mortality rates in this country are

today among the highest in the civilized world; only a slight decrease in these rates has occurred since the beginning of the present century. A comparison shows the United States ranks among those having the highest maternal death rates—as New Zealand and Chile. Countries having less than half of the maternal death rates of the United States are Denmark, Finland, Italy, Japan, the Netherlands, Norway, Sweden and others. Two-fifths of the deaths of this class of patients are due to septicemia, or lack of surgical cleanliness. Fifteen to twenty thousand women die in this country annually directly from the effects of pregnancy, and fifty per cent of the remainder suffer in varying degrees from its effects. Dr. L. A. Calkins, in the *Virginia Medical Monthly*, says 500 mothers and 5,000 babies in Virginia lose their lives each year in the act of parturition. A step forward would be effective supervision of these cases by health officers, and puerperal diseases should be made a reportable disease just as other contagious or infectious diseases. The result of such action in Norway has been a reduction of four-fifths of these cases, and similarly striking results have been obtained in England, Wales and the Netherlands.

Beginning with 1907. Twenty years ago, \$3,000 were realized from the sale of Christmas seals distributed by the State and National Government and local Tuberculosis Associations for the prevention and treatment of tuberculosis. In 1925, \$4,900,000 were realized from this sale. Deaths from tuberculosis have been reduced since 1907 from 200 per 100,000 population to 90 out of every 100,000—110 per cent reduction. In the past 25 years 1,300,000 more persons would have lost their lives from this disease, had the death rate of the year 1900 prevailed. This is, indeed, encouraging, but there remains a long waiting list of persons affected with tuberculosis for admission to our State institutions for lack of adequate room.

I have referred to some of the statistics of our hospitals already, but allow me to make another reference. The figures give some idea of the tremendous and important place now occupied by hospitals in medical education in this country.

Hospitals are destined to render greater service as they assume their educational function and when they become more fully permeated with the spirit of investigation and research—

and are better equipped and better endowed. Then hospitals will render more efficient service to the public, not only providing care for the sick, but in educating the people of their communities in regard to scientific and attested facts in medicine.

The welfare of future generations will depend upon the health of the adult of today. The report of the Surgeon General of the U. S. Army on defects found in the drafted men shows about one-half of the young adult male population to have physical and mental defects worthy of note, and one-fourth have impairments sufficiently severe to disqualify them for military service. According to this same report, the chief causes of rejection for this service are the results of physical injuries and defects—diseases of the heart, tuberculosis and mental diseases. Our school children are 50 per cent defective; in varying degrees, most of these defects are remedial.

The *Life Extension Institute* also reports "that over 50 per cent of adult males studied by them have moderate to advanced physical impairment, needing not only hygienic guidance but also medical, surgical, or dental treatment." In this group are the large number of so-called "silent diseases," which produce varying and deplorable degrees of disability. At this enlightened period of our existence, at least 15 per cent of the population have serious conditions demanding attention. An important contribution to present-day health work would be the correction of dental and mouth defects, most of which can be corrected in childhood, and the efforts of the medical and dental professions and the co-operation of school authorities, with financial support from the County or State, would be a long stride in the right direction.

Dr. W. F. Draper, Asst. Surgeon General of the Public Health Service, in an address before the American Medical Association at its last meeting, said, "it is my impression that the old family physician knew far more about his families and their members, regarding their physical condition and mental comfort than is the case nowadays. Undoubtedly, an enlightened return to this more intimate relationship would be better for the public and also, I think, for the physician.

"Is there any good reason why the discovery of defects in the children of families in which the physician attends the adult members, should

be left to the school medical examination, if there happens to be one? Should not the family physician have detected and treated these in their incipency? Must their dietary diseases, their hernias, their tuberculosis, their mental maladjustments go unrecognized until the patient himself, or his relatives, or employers, or society in general complains of them? The alarming extent to which defects and diseases go unrecognized until it is too late to accomplish anything more than palliation, is sufficient evidence that somebody has failed. It is easy to blame it on the ignorance or carelessness of the individual (and often this is justly true), but I believe that much of this wastage could fairly be laid at the door of the physician who has neglected abundant opportunities for service, and also for legitimate and compensable medical practice."

GLAUCOMA.*

By WILLIAM THORNWALL DAVIS, M. D., Washington, D. C.

Case 1. White, male; 57 years of age. Seen May 10, 1927.

The patient complained of epiphora left eye, beginning on March 29, 1927. Immediately after this he noticed dimming of vision in this eye accompanied with a feeling of fullness in the globe; occasionally there was a sensation as of a foreign body in the eye. The thought that he might have serious trouble with the eye depressed him very much. The examination was as follows:

V.O.D. 20/40 WS. + 1.75 = 20/30 + 4.

V.O.S. 20/100, no glass improved.

T.O.D. 34; T.O.S. 24; (Schiotz).

Visual form fields normal. Left blind spot slightly enlarged. There was no scotomata. The slit lamp showed cornea, aqueous and lens normal in both eyes. One drop of euphthalmine caused the left pupil to dilate ad maximum. Ophthalmoscopic examination showed the left retina and disc to be edematous and hazy, with engorged retinal veins; a well defined, low grade, neuroretinitis or posterior uveitis. He was placed in hospital for study and treatment. The latter consisted of mercurial inunction $\frac{1}{2}$ 1 daily; hot packs once daily; restricted diet; plenty of water; full catharsis; in other words, rapid elimination. The local treatment consisted of hot applications three times daily, with pilocarpin solution gr. ss. to $\frac{1}{2}$ 1. t.i.d. in each eye.

*Read in Roanoke, Virginia, September 19, 1927, at the Staff Meeting of Gill Memorial Eye, Ear and Throat Hospital.

On May 17th, the vision in the right eye was 20/15 and the left eye 20/20 with correction. T.O.D. 23; T.O.S. 21.

On July 2, 1927. T.O.D. 23; T.O.S. 26. Blind Spots *normal*. Scarcely any difference to be noted in the two fundi; retinal veins in the left eye remained slightly engorged.

On July 14, V.O.D. WS. + 0.75 = 20/15; V.O.S. WC. — 0.50 \times 135 = 20/15; T.O.D. 31; T.O.S. 20.

The salient points in the medical examination were as follows:

Tonsillectomy at forty-nine years of age on account of neuritis. At fifty years he had acute frontal sinusitis, which was treated and cured. He works hard, eats plentifully, takes some alcohol. He takes insufficient exercise. His weight is 226 pounds which is some forty pounds overweight. Diverticulitis, appendicitis, and gall-bladder disease were suspected, but could not be proved. The other examinations, blood, urine, etc., were negative.

We have then a man of fifty-seven years, a hard worker, over nourished, overweight, too little exercise and too much alcohol; (any alcohol under the above conditions would be too much). He develops a low grade posterior uveitis of the left eye, which rapidly clears under eliminative treatment. There is, however, a well defined increase in the intraocular tension, first demonstrable in one eye and then in the other. How long this has been going on is doubtful. We may assume it has not been long since there are no field changes; this assumption may be erroneous as the next case would indicate.

CASE 2. White; male; fifty-two years of age; unmarried; druggist.

First observed September, 1915, complaining of aching of eyes and tenderness of the globes.

FAMILY HISTORY: Mother was semi-invalid for thirty years as a result of polyarthritis.

PREVIOUS HISTORY: Operated twice for varicocele. He had never been robust. Within past two years he had three attacks of nausea together with obscuration of vision, lasting about an hour and passing off without further incident.

PRESENT CONDITION: The patient complains that on using the eyes or when he is fatigued, there is throbbing of the temples and pain in the eyes together with nausea. On sleeping these symptoms disappear. He is physically a poor specimen and intensely neurotic.

EXAMINATION of the eyes shows the left disc

cupped 1 D. and paler than the right. T.O.D. 30 mm. Hg.; T.O.S. —52 (Schiotz) V —20/15 and J. 1. each with proper correction. Blind spots normal. No scotoma. Physical examination by Dr. Thayer is reported as negative except slight pyorrhea and cardiac enlargement of mild degree.

TREATMENT: Hygienic and dietary; eserin salicylate gr. 1/20 to $\frac{3}{5}$ three times daily and pilocarpin nitrat gr. 1/10 to $\frac{3}{5}$ three times daily, alternating.

In March, 1917, the vision was 20/30 and J. 1. in each eye with correction. T.O.D. 21; T.O.S. —29. The patient was comfortable. There were fugacious symptoms which may have been real or fancied. He was given eserin gr. 1/10 and pilocarpin gr. 1/5 three times daily, alternating.

In January, 1920, the left disc was found to be of increased paleness over the first examination. October, 1920, T.O.D. —22; T.O.S. —30; V. 20/15 ea. Dr. Barker reported incipient hyperthyroidism and Dr. Hiram Woods a suspicion of glaucoma simplex.

The eserin was omitted as it blurred his vision. He was given pilocarpin gr. 2 to $\frac{3}{5}$ three times daily; following this the discomfort of the eyes increased and in December he was put on eserin gr. $\frac{1}{4}$ to $\frac{3}{5}$ twice daily, in addition to the pilocarpin.

In December, 1920, two small scotomata made their appearance in the left visual field. He complained of seeing black spots before the eyes and of attacks of scintillating scotoma. In February, 1921, no scotomata could be demonstrated; tension and appearance of the eyes and fundi were without change.

At the present writing the conditions as outlined remain the same. It is difficult to disengage his neurotic symptoms from those that are real, hence only the objective symptoms are of value.

Is the diagnosis of glaucoma simplex justified? It would seem that it is, based on the increased intraocular tension, the presence of the scotomata and the reduction of the visual fields. The intraocular tension, the appearance of the discs, the symptoms and the visual acuity have remained practically unchanged for six years. Further progress of this case is interesting.

In February, 1922, T.O.D. 25; T.O.S. 46. He is now on pilocarpin gr. 2 to $\frac{3}{5}$ for right eye and gr. 3 to $\frac{3}{5}$ for left eye. The tension remaining up and it being impossible to use

stronger miotics on account of the blurring and discomfort caused thereby; an iridectomy was done on the left eye in December, 1922. Iridectomy was chosen as an incipient cataract was developing in this eye.

February, 1923, T. O. D. 30; T.O.S. 20. In October, 1924, there was a sudden edema of both maculae with paramacular exudate. Infected tonsils were found and removed. The prostate showed well developed infection and was energetically treated. The macular disease promptly subsided following these measures and the use of sweats, mercury and iodides.

In May, 1925, T.O.D. 31; T.O.S. 25; V.O.D. 20/15; V.O.S. 20/40. In July, 1926, T.O.D. 36; T.O.S. 34. He is now on pilocarpin gr. 5 and eserine gr. 2 to 3. February, 1927, T.O.D. 29; T.O.S. 25. In March, 1927, the right eye was trephined.

June 21, 1927, the following notes were made. V. 20/30 and J. 1 each eye, with correction. O.D. disc cupped 2.50 D., the cup does not involve the edge of the disc and the vessels are not pushed against the nasal wall. The cup does not look like a glaucomatous cupping. There is little or no atrophy. O.S. disc cupped 1.50 D., cup is large and involves the temporal edge of the disc. The vessels are not displaced to the nasal wall. T.O.D. 11; T.O.S. 29.

CASE 3. White; female; age forty-five years. Was refracted in November, 1923. Eyes were normal at this time, and showed moderate hypermetropic astigmatism. In March, 1926, she presented herself complaining of pain and blurring of the right eye. The pupil was moderately dilated and oval with the long axis vertical. There was moderate ciliary congestion and numerous spots of cyclitic exudate on the back of the cornea. The aqueous was hazy with numerous granules floating in it as shown by the slit lamp. The retinal vessels and disc showed moderate congestion. Tension right eye 46 mm. Hg. (Schiotz); left eye 25. On dilating the right pupil with euphthalmin, the tension went to 43. She was hospitalized; infected tonsils removed at once. The treatment in hospital was as follows: Hot packs once daily; leeches to the right temple; sodium salicylate gr. 30 t.i.d. inunction with mercurial ointment 5 1 daily; hot fomentations and pilocarpin nitrat solution gr. 2 to 3 1, three times daily in the right eye.

The interesting aspect of this case of uveitis

with increased tension now follows: Within three weeks the uveitis completely cleared. The slit lamp showed no changes; the ophthalmoscope revealed only a cupping of the right disc of 3 diopters together with slight paleness. Tension remained between 27 and 35. The visual fields showed contraction with a paracentral scotoma.

Thus at this stage the case presented *only* symptoms of a glaucoma simplex. The most careful study with the lamp and the ophthalmoscope showed no evidence of the preceding uveitis. Had this case been seen at this stage even a careful history would not have revealed the presence of the uveitis in all probability. It would have been diagnosed as a case of glaucoma simplex by most of us, I am sure. The tension, fields and vision returned to normal and the paracentral scotoma disappeared. The cupping of the disc remained. She was seen a short time ago for refraction and the eye has remained normal.

There is one aspect of the etiology of this puzzling disease that may be of interest to discuss. First, let us consider the cases reported. In case one, there were no suspicions of glaucoma, but there was a posterior uveitis of the left eye, most probably of toxic origin. The tension of the right eye was increased; later, after the uveitis had about cleared, the tension of the left eye was found to be increased. There were no other symptoms of glaucoma; the visual fields were normal, there were no scotomata and the blind spots were normal. There was no reduction of visual acuity.

We might say this patient is in the preglaucoma stage. We can scarcely recommend operative procedure on increased tension alone. What then is the cause of the increased tension in this case? May we not assume that due to his improper mode of life he developed a low grade toxic uveitis and that this inflammation of the uvea so altered the secretion of the nutrient fluids of the eye that the condition called glaucoma has arisen? Or may not this low grade inflammation which may have been going on for a long, long time brought about a change in the drainage apparatus at the iris angle so that proper and prompt removal of the nutrient fluids of the globe cannot take place; or may not both conditions have arisen?

Case 2 offers several points of interest, particularly in connection with case 1. In case 2, we have an intensely neurotic patient, so

much so that it has been found necessary to eliminate from consideration all the subjective symptoms. If we omit the subjective symptoms, he carried for seven years an increased intraocular tension with little or no damage to the eyes. According to reports upon his physical condition by Thayer, Barker and Parker he showed a psychoneurotic state with nosophobia and vasomotor disturbances. Slight thyreopathy. Genital hypoplasia. In the latter examination by Parker, cerebral arteriosclerosis was suggested. I am inclined to think there must be some organic cerebral disease, as the psychoneurosis has become much worse. In fact, this patient is now really a melancholic.

He evidently had foci of chronic infections, the tonsils, teeth and prostate, that would easily account for chronic vascular disease. Those toxic conditions did acutely affect the eyes when the chorioretinitis centralis took place. How long was the tension increased before this patient came under observation in 1915? He was under observation for seven years with increased tension of considerable degree and very slight changes in the discs; even now in one disc there is no cup that involves the edge of the disc, and very little or no atrophy. If increased intraocular pressure were responsible for all the symptoms of glaucoma it would seem in this case that most certainly earlier changes in the visual fields might be expected. But in the last fields taken they were scarcely disturbed in the normal contour, and this after twelve years *at least* (possibly longer) of increased tension. The necessity for operation rose when the miotics no longer controlled the tension with the pupil contracted to the minimum commensurate with efficient vision.

Why does this case run so many years with increased tension of marked degree, and some other cases with scarcely any, or possibly no demonstrable increased tension, have great field changes and rapidly deteriorating vision? Evidently there must be a factor other than increased intraocular tension. May it not be that this factor is interference with the nutrition, due to alterations in the aqueous? This alteration may be much or little and different in degree and so affect one portion of the globe more than another, thus in one case causing interference with the drainage, hence increased tension. In another case the changes

may be mostly in the posterior segment as a result of the malnutrition, in which case the damage will be mostly in this region, and field and disc changes will occur.

It will be very interesting to follow case 1 and to observe its course as compared with case 2. I think it probable that case 2, had at one time low grade uveitis, and that this might have been discovered had a slit lamp been available at the time.

In case 3, we have a typical *acute* uveitis from a focal infection. This was followed by what appeared to be a typical glaucoma simplex. It is my belief that what we observed in this case, occurring over a period of several weeks, is what takes place in some cases during a period of many years; as in the first two cases for example. The nutritive damage in case 3 was not of sufficient intensity to cause lasting injury.

As a result of chronic inflammatory processes, we know very minute, but very important changes take place in the secretory epithelium; in the kidney in chronic nephritis, for example. After a certain time the secretory epithelium begins to fail in the function of elimination. That is, the fluid excreted is changed. May we assume that this same condition may obtain in the secretory epithelium of the ciliary body and that the aqueous is a changed aqueous? Hence the nutrition of the avascular structures of the globe suffers and the symptom complex called glaucoma makes its appearance.

It is not easy to accept the dictum that *all* the symptoms of glaucoma arise from the increased tension. We know that relief of tension by a proper trephining operation which maintains filtration does not always stop the ravages of this terrible disease; particularly is this true in advanced cases with great reduction in the visual fields. What then is the cause of the continued atrophy of the retinal fibres causing greater contraction of the visual fields, greater cupping of the disc and finally blindness? It is not due to increased pressure on the retinal elements and the disc, because this hypertension has been eliminated. It may be that the increased tension having once started the process is continuous even after the increased tension is reduced, but this does not sound probable. What then is the cause of the continuation of glaucoma? Can we not assume it is the malnutritive process in the

secretory epithelium; the epithelium of the ciliary processes in particular?

Difficult as it is, we should study in the laboratory the early and minute changes taking place in the secretory epithelium and allied structures in the eye in order that we may know their histo-pathology with the same thoroughness that we know such changes in the kidney.

Ophthalmic pathology is yet young and there is a great deal to be learned. Inflammation of the uveal tract has been studied only in its grosser aspects; we do not as yet know the earliest changes occurring in this structure as a result of chronic low grade inflammation. We are not yet satisfied as to the nature of the secretion (aqueous) of this structure. It is a mooted question as to the glandular formation of the ciliary processes. However, the aqueous is there and it must furnish nourishment in part, at least, for the avascular structures of the globe.

Lauber, of Vienna, remarked in a lecture on this subject fifteen years ago, that some other factor than increased intraocular tension was the cause of the cupping of the disc, and Fuchs speaks of the development of lacunae posterior to the lamina cribrosa. Many of us have seen cases with the classical glaucoma symptoms without demonstrable increase of the intraocular tension. We explain such cases by saying the tension varies greatly at different times, and that we do not happen to take the tension at a time when it is above normal. This explanation is not entirely satisfactory. To summarize:

1. Increased intraocular tension alone does not account for all the symptoms in all cases of glaucoma.

2. The careful study of many cases of so-called glaucoma will give evidence of uveitis of low grade.

3. May not the chronic uveitis affect the epithelium of the ciliary processes?

4. If this secretory epithelium be diseased as a result of this chronic inflammation may we not have here a condition analogous to that seen in chronic nephritis in which the secretory epithelium suffers? As a consequence, far reaching toxic and nutritive changes occur throughout the body.

5. If this aqueous which is a product of the ciliary epithelium be altered, it must be that the nutrition of the eye will suffer.

6. It may be that this alteration of the aqueous will cause it to have a toxic effect and so further affect the integrity of the ocular tissues.

7. It has been suggested by several authorities that changes in the aqueous may account for improper and insufficient drainage and thus for the increased intraocular tension.

8. The last named hypothesis is no doubt true, but in addition thereto the nutritive disorders caused by an altered aqueous are believed to be effective in causing some of the symptoms.

Extracts from the monograph of W. Stewart Duke-Elder; being the Sir Francis Laking Prize, from the Biochemical Department, St. George Hospital, London, on the nature of the intra-ocular fluids.

"Ever since the beginning of scientific ophthalmology—the origin and nature of the intra-ocular fluids have been the subject of investigation, discussion and disagreement. The theory which is most generally accepted at the present time is that the aqueous humour is secreted by the cells of the ciliary epithelium, that it circulates through the eye, and that it finds an exit therefrom largely by way of the canal of Schlemm.

"Authority tells us that the most common cause of glaucoma is an obliteration or diminution in the efficiency of the exit channels of the intra-ocular fluids at the angle of the anterior chamber, a damming back of the aqueous with a consequent increase of tension. If the condition of raised tension were due to the damming back of fluid at its exit, it appears only reasonable to expect that the aqueous being unable to get out, would be present in excessive amount. The striking thing is that in the vast majority of cases exactly the opposite condition holds good; the aqueous is definitely diminished and in the more acute cases is present in negligible quantity while the lens and iris are pushed forward almost to touch the cornea. It would seem, therefore, that Authority is certainly illogical, and it may be suspected that it is probably wrong.

"The strongest piece of indirect evidence in favour of the intervention of secretory energy in the formation of the aqueous humour is that although physiological experiment has correlated the variations of intra-ocular pressure directly with variations of the blood pressure,

clinical experience shows that, while there seems to be a certain association between them, the two do not vary in parallel.

"When in addition to the hydrostatic pressure of the blood we take into consideration also its osmotic pressure, with the further influence of changes in the concentration of salts and hydrogen ions on the physical state of the vitreous and lens, there seems every reason to suppose that the energy necessary to maintain and vary the intra-ocular pressure can be adequately explained without postulating a special source in a separate secretory process.

"I have come to the conclusion; that—the nature of the mechanism of the formation and circulation of the aqueous humour as at present classically accepted and taught is wrong; that—the aqueous is neither a secretion, nor in the accepted sense a transudate from the blood; that—it is a dialysate from the capillary plasma, the essential dialyzing membrane being the capillary walls; that—under normal conditions, while an interchange due to metabolic activity constantly occurs, and an internal thermal current exists, the aqueous humour does not circulate actively through the eye, but is in equilibrium with the capillary blood; that—at the same time, constantly occurring changes of pressure, induced by muscular movements, etc., superimpose upon it secondarily a minimal and intermittent circulation.

"Normally the capillaries are relatively impermeable to those constituents of the blood which occur in colloidal aggregation. It is well known that in a state of dilatation the permeability of the capillaries is increased, and that in these circumstances a larger portion of colloidal molecules is able to penetrate through their walls until a stage is reached when practically all the constituents of the plasma are allowed to pass indiscriminately (see Krogh, 1921). This occurs in the eye as elsewhere, and along with the increased protein content of the aqueous humour formed under those conditions very definite changes in the ionic distribution between it and the plasma take place. This aqueous I have proposed to call the *Plasmoid Aqueous*.

"The aqueous humour formed under these conditions which has been most extensively studied is the fluid re-formed after paracentesis of the anterior chamber. This re-formed aqueous has been variously called 'albuminous' or 'secondary' or 're-constituted' aqueous.

"It will, however, be shown that in addition to albumen it contains all the colloidal constituents of the plasma in abnormal amount—globulin, immune bodies, etc., and that definite changes involve its other constituents. Further, a fluid of the same chemical constitution is formed not only after paracentesis but under all conditions where capillary dilatation occurs, as on radiation of the eye or on application of heat, irritant subconjunctival injections, mechanical and chemical irritation of the cornea, the production of venous congestion by subluxation of the eyeball or constriction of the neck. Moreover, its formation is prevented by any agency which prevents the capillaries dilating, as stimulation of the sympathetic, the injection of adrenalin, or ligation of the carotid.

"The composition of the aqueous is therefore a function of the state of capillary dilatation rather than of the pressure difference between the blood stream and the chambers of the eye.

"Difficultly diffusible drugs, moreover, when they are injected into the blood stream are found in traces in the normal aqueous.

"It has already been noted that when the permeability of the capillaries is increased by dilatation or by diminishing the physiological integrity of their walls by any agency, all these substances pass with much greater freedom into the eye.

"The osmotic pressures of the aqueous and the blood are not far removed in magnitude.

"As with the chemical composition so with the physical properties—all the variations from the normal that have been described as occurring in the aqueous humour can be explained on physico-chemical lines as being the direct consequence of either a change in the permeability of the capillary walls, or a change in the concentration of the constituents of the blood.

"From the chemical point of view, therefore, the aqueous would appear to show both in its normal constitution and in the variations of its constitution from the normal, a composition which is difficult to explain in any other way but that it is determined by the thermodynamical considerations which govern the formation of a dialysate from the blood. There is no evidence of any chemical energy being expended as we would expect in the elaboration of a secretion, either in the forma-

tion of new substances, in the retention (apart from that on a physical basis) of substances already present, or in the abnormal concentration of any of its constituents.

"If the aqueous is formed by a physical process of dialyzation as its chemical constitution both in the normal and in the abnormal state would strongly suggest, it follows that the physical forces involved in its production must conform to the thermo-dynamical equilibrium which has been considered. If, on the other hand, the terms of this equilibrium are not satisfied, it would seem that in the present state of our knowledge it will be necessary to postulate the intervention of some other force which for a convenient name we may call 'secretory'.

"This physical equilibrium entails hydrostatic and osmotic forces and differences in electrical potential. It is through the endothelial cells of the capillary walls that all vital processes are mediated; through these the process of dialysis will take place. We have already seen that the osmotic pressure of the aqueous humour corresponds with that of a dialysate of the capillary blood—its molecular concentration thus forms a strong argument in favor of this theory of its origin. If the system is in equilibrium the blood pressure in the capillary circulation must exceed the hydrostatic pressure of the aqueous (i. e. the intra-ocular pressure) by an amount which is equal to the difference between the osmotic pressure of the two fluids. Thus equilibrium is attained when the hydrostatic flow from the blood stream to the eye is exactly compensated by an equal and opposite osmotic attraction from the aqueous to the blood.

"In addition to the fact of the existence of a chemical equilibrium all the conditions of physical equilibrium—hydrostatic, osmotic, and electrostatic—seem also to be fulfilled.

"We therefore conceive of the eye as containing a fluid in membrane—equilibrium with the capillary blood. As such it must be essentially stagnant. If this conception is correct there are two large questions which it is advisable to clear up at the outset; the maintenance and variation of the intra-ocular pressure, and the circulation of the intra-ocular fluids.

"*The most convincing argument in favor of a special secretory force responsible for the formation of the aqueous humour is the fact*

of the intra-ocular pressure. Curiously it is a consideration which has rarely been put forward.

"The enucleated eye has a tension of 8 to 10 mm. Hg. which it retains for some considerable time, and only loses gradually on the disintegration of the lining cells.

"Since it is found under these conditions, the maintenance of this tension cannot be due to the blood pressure, and since it remains in the enucleated eye, it cannot be due to any hypothetical secretory activity; there must be a lining structure which acts as a relatively water-proof membrane and retains within it fluid up to a pressure of 10 mm. Hg. Such a structure is not without parallel elsewhere in the body; it corresponds to the membranes or capsules surrounding glands such as the salivary glands, organs such as the tongue, muscle groups, etc. When pressure is generated within these in pathological conditions, as in inflammatory processes, abscess formation, etc., a condition of tension is set up which may proceed to strangulation of the organ unless it is relieved by surgical incision of the membrane.

"It may be suggested that such a 'membrane' is formed by the endothelium of the cornea, which Leber (1873) showed to be impermeable up to relatively high pressure, the endothelium and epithelium covering the iris and ciliary body, and the retinal epithelium supported by the membrane of Bruch.

"Between this relatively impermeable membrane and the slightly distensible sclerotic lies the vascular *reservoir of the uveal tract*.

"The equilibrium level of the intra-ocular pressure is maintained by the hydrostatic pressure in the capillaries *minus* the difference in osmotic pressure between the aqueous and the blood.

"It is probable that since the canal of Schlemm is favorably situated far down the venous pressure gradient and is surrounded by an endothelial wall resembling that of the capillaries, while osmotic re-absorption into the blood stream is possible throughout the eye generally, a large part of the process will take place here. Although no movement of fluid in mass thus results, these considerations will tend to impose upon what is essentially a reciprocal ebb and flow occurring throughout the eye, a tendency towards a diffusion

from the iris and ciliary body to the angle of the anterior chamber.

"Under normal pressure conditions the venous pressure in the exit veins is slightly higher (1 to 2 mm. Hg.) than the intra-ocular pressure, and a hydrostatic outflow of the intra-ocular fluids is therefore impossible; but that under conditions of raised intra-ocular pressure, the pressure here tends to fall below the chamber pressure. Under these conditions it is possible that the equilibrium is so altered that a hydrostatic outflow may occur temporarily through the canal of Schlemm, which thus acts as a safety-valve mechanism to aid in the maintenance of the intra-ocular pressure at its normal level.

"The evidence of the injection of dyes therefore demonstrates no actual entrance flow of fluid into the eye; but merely indicates that a reciprocal process of dialysation takes place between the blood and the aqueous humour, whereby foreign substances enter the eye from the capillaries by simple diffusion.

"If the evidence of injection has led to any conclusion at all it must be to the conclusion that all parts of the eye are concerned in the formation and absorption of the aqueous humour; that the ciliary body is to the largest extent implicated in the first process, and canal of Schlemm and the anterior surface of the iris in the second.

"The ciliary body is not always present; when it is present the aqueous is not formed from it exclusively. It is therefore not essential for its formation. If it is accepted as a gland, then it must be admitted that it shows no activity as a gland but merely allows the aqueous to diffuse through its cells passively; that is, it must be admitted that it secretes nothing, for the intra-ocular fluids are in thermodynamical equilibrium with the capillary blood, and in their passage through the epithelial cells no work of any kind—chemical, hydrostatic, osmotic, or electrostatic is done. On the other hand, the anatomical configuration of the ciliary body can be looked upon as providing every facility for dialysation with its abundant and direct blood supply and with its surface area multiplied with reduplications and plications.

"A scheme whereby the intra-ocular pressure is maintained at its normal level has already been suggested. *The equilibrium point—that at which the eye is rendered sufficiently rigid*

*to function as an optical instrument and at which its circulation and metabolism can at the same time proceed without disturbance—*is normally maintained by the difference between the hydrostatic pressure in the capillaries and the osmotic pressure called into being by the excess of colloidal material in the plasma in comparison with the aqueous. The equilibrium point may be raised if the capillary pressure is raised to a higher level, or if the difference in colloid content between the two fluids is lessened, as occurs, for example, when the protein material in the aqueous is increased, as in inflammation. The equilibrium may be disturbed by an increase in the volume pressure of the contents of the globe—an increase in the aqueous, or in the volume occupied by the vitreous or the lens or the uveal blood reservoir. Any such disturbance is normally compensated within very wide limits by the safety-valve action of the canal of Schlemm, and the aqueous thus acts as an elastic cushion, its quantity being in inverse proportion to the volume occupied by the blood-vessels and the vitreous. If for any reason this safety-valve action is rendered inefficient or abolished, then disturbances of the equilibrium become cumulative and tend to be permanently effective, and the intra-ocular pressure rises. If the disturbance is due to vascular conditions, then the resultant rise of pressure is limited to the effective limits of the intra-ocular blood pressure. The causes of such a disturbance are to be found in the factors which control the general state of the circulation, and in the pathological state of the capillary walls and the physical, hormonal, nervous, and chemical influences which preside over their physiological activity. If the disturbance is due to an increase of volume in the vitreous then the resultant rise of pressure is practically without limits.

"The vitreous is a gel, and our knowledge of the turgescence and turgidity pressures of gels is as yet by no means as extensive as we might wish.

"The swelling and the turgidity pressure of the vitreous can be measured experimentally, and that of the lens can be seen in the beam of the slit-lamp. The turgescence may progress to such an extent as to push out practically all the aqueous and abolish the anterior chamber, and to force out the blood from the choroid reservoir, until it may over-

come the effective blood pressure of the feeding arteries and strangulate the eye. Variations in the turgidity balance play a very important part in a wide range of biological processes, and pushed beyond pathological limits the potential force involved in turgidity pressure is enormous. Rocks can be split asunder by inserting dry wood into existing crevices and making the colloids of the wood swell by pouring a little water over it—a fact well known to the ancients.

"Thus glaucoma is interpreted as a pressure symptom merely. It is probably much more. For example the same or parallel physico-chemical processes which produce changes in the physical equilibrium of the vitreous may as well and as reasonably derange the still more complex physico-chemical basis of the mechanism which converts radiant energy into nerve impulses in the retina and which mediates the functional activity of the nerve fibres in the retina and the optic nerve. *Glaucomatous symptoms appear to be almost independent of pressure, and at other times to progress after the pressure has been efficiently relieved.*"

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SOME LITTLE RECOGNIZED CAUSES OF CHRONIC SYMPTOMS.*

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Perhaps the most epochal advance in internal medicine since the discovery of the relationship of bacteria to acute disease entities is the more recently found evidence of an indisputable relationship of chronic focal infection to chronic systemic disease. Since such a relationship has been proven we have found that many time-worn diseases are in reality only symptoms that often, even in long standing cases, rapidly vanish when the primary focus or foci are found and cleared up.

While in chronic as in acute diseases prevention should be our highest aim, we are not fortunate enough to see many of our patients until the noticeable symptoms have become firmly fixed, so that necessity forces us to turn towards the problem of helping such cases even though they are of long standing.

No one disputes the evident fact that in dealing with chronic patients the old "tried and true" methods, though still very important, have all too often proven inadequate to

the end of getting our patients on the permanent road to health. Likewise, no one disputes that in some cases the removal of the primary focus works wonders in the restoration of our patient to a normal condition. And yet there is another large class of chronics who apparently neither respond to the older methods of treatment, nor to the newer method of removing a recognized focus supposedly causing the symptoms, nor to the various combinations of such treatments.

It is such cases, who have had tonsils or teeth or sinus infection corrected with no response that have shaken the faith of many a good doctor in the workableness of the theory of focal infection. And it is with the hope of throwing some light on the treatment of just such cases that this paper is presented.

A brief review of a few of our routine cases will, perhaps, better than any other way, illustrate the points in consideration.

During June, 1925, a single lady of thirty-five presented herself for treatment, complaining of a general run-down condition. The history was strongly suggestive of a nephritis that had been going on untreated for a period of twelve months or more. A careful examination showed the urine to be loaded with pus, casts and albumin, with an unsuspected chronic maxillary sinus, chronic infection of the tonsils and chronic endocervicitis as the apparent cause.

In this case the maxillary infection, which proved to be of dental origin, was judged to be the chief offender. The diseased teeth were extracted and the sinus drained by enlarging the opening through the alveolus. At the same time, the infection of the cervix was cleared up. A week later the tonsils were removed.

The kidneys rapidly returned to normal and after a period of nearly two years have shown no sign of the recurrence of a Bright's that seemed to be in a hopelessly advanced stage.

A married lady of fifty-seven had been having attacks with her head at intervals for six years. They would begin with dizziness and severe pains that often required a hypodermic for relief. They were also usually accompanied by severe mental confusion and at times loss of consciousness. She would take a course of drastic purgation and after one or two weeks the condition would clear up, only to be followed with a similiar attack later on. These attacks had become more and more fre-

*Read before the Southside Virginia Medical Association at its Emporia meeting.

quent until she had grown very weak and anemic, and almost incapacitated for work of any sort. No diagnosis had ever been made except that she had been told her condition was due to high blood pressure. A careful examination showed a chronic maxillary sinus infection whose active toxic symptoms dated from the time she had her teeth extracted six years previously, following which she had her first bad spell. For the past year she had not been free of a dizzy headache even in between the attacks. There was also a rather positive type of hemorrhoids, which was contributing towards a persistent constipation, and the tonsils showed evidence of chronic infection.

Following drainage of the sinus in question, all head symptoms cleared up immediately. A little later, as soon as she was sufficiently strong, the hemorrhoid and tonsil operations were done. Her color rapidly improved, the bowels are now moving normally, and she has entirely regained her health.

A married lady, aged twenty-four, came in because of a persistent agonizing left facial neuralgia and chronic indigestion. She had spent the greater part of the past five years in hospitals and under treatment outside. During this period she had been operated on a number of times and was almost literally shorn of every organ she could do without, including tonsils, teeth, gall-bladder, appendix, pelvic organs and various others too numerous to mention, in the various attempts to allay her symptoms. Her hemoglobin was so low that she practically had no color and she was one of the most toxic looking human beings I ever saw, with all symptoms growing worse.

Examination revealed a right-sided maxillary sinus infection (remember the active symptoms were on the left side) and a chronic infection of the uterine cervix which had been left in at the time of the removal of the other pelvic organs. Drainage of the sinus and clearing up the cervix infection has absolutely put this patient on her feet again and transformed her into a healthy looking woman.

A married woman of thirty-two presented for treatment because of an unbearable neuritis in her right shoulder. She had been under treatment for some weeks and several good men had failed to locate any cause for the aggravated shoulder condition, which had incapacitated her for work for over two months.

She gave a history of considerable disturbance of menstruation for several years. Examination showed a large boggy uterus, resembling one about two months pregnant, and a severe erosion of the cervix. Appropriate treatment of the cervix condition with tonics and vaccines cleared up the neuritis rapidly and she has had no recurrence.

A woman of twenty-two came on account of a persistent and aggravated painful keratitis of the left eye that resisted all local treatment. Vision in this eye was counting fingers at six feet, and the other eye was also becoming involved. For this reason, and because of the further fact that one of her brothers had lost an eye in a similar way, she was much alarmed.

Examination showed eight abscessed teeth, a left maxillary sinus infection, chronic disease of the tonsils and a marked endocervicitis. On clearing up these points of infection, the eyes rapidly improved and were practically well in about fifteen days, with vision normal.

A woman twenty-three years of age presented for treatment on March 29, 1926, complaining of a numbness from her waist down, which approached a paralysis in gravity as she had very limited use of her lower limbs. She also showed a melancholic type of mental deterioration. Her tonsils had been removed about three months previously with the hope that she would improve, but instead she was steadily growing worse.

Her history showed a very stormy menstrual life with much disturbance during her pregnancies, which had been three in number, and her present symptoms dated from the birth of her last child six months before. Examination showed a well nourished woman, with every organ negative except a large boggy uterus with a rather marked cervicitis. Upon appropriate treatment of her uterine and cervical condition, her symptoms rapidly improved and she is now strong and well both mentally and physically.

On November 2nd, 1925, a married woman of thirty-five was brought because of a rapidly developing melancholia with mental confusion. She had been in failing health for some years, but no mental symptoms had been noticed until about one week previous to her presenting for treatment. Clearing up an aggravated cervix infection and removal of her tonsils

restored her to normal both mentally and physically and she is now in better health than ever before in her life.

A married woman, thirty-nine years of age, with a history of ten confinements, was referred on September 24th, 1926, on account of a lethargic stupid mental condition with very poor appetite, both of which dated from the birth of her last child two years before. All symptoms were growing progressively worse and she was becoming quite weak and looked sick. Her people stated that she had always been a bright, animated, hard working type of woman, who took more than average interest in her children and home life. Her pregnancies and confinements had all been normal with the exception of the mental stupor that began immediately following her last confinement. Her tonsils had been removed some weeks before with the hope of alleviating the toxic condition into which she had developed, but there had been no improvement.

When she came to us a most careful examination could elicit nothing definite as a cause of her symptoms except a boggy enlarged uterus with a rather extensive endocervicitis. Her condition had become so grave that little hope of helping her was held out to the family, and yet, following appropriate treatment of the cervix and uterine condition, she immediately began to improve and has since entirely recovered from a condition that seemed absolutely hopeless as viewed from older methods of treatment.

In the work we are doing we have long since learned to look for some form of chronic septic infection as the cause of heretofore unexplainable symptoms of chronic patients. Each of the cases reported had been given the best treatment available along old lines before coming under our observation. While we need never expect to succeed in making all of these unfortunate sufferers well, the results have often been so marvelous and so prompt, even in long standing cases, as to be almost unbelievable.

In summing up, I would say that the more we have followed out the idea, as given above, in treating our chronic patients, the more thoroughly convinced I have become of the following conclusions:

1. There is very, very little, if any, of what was once called idiopathic or functional disorders of the system.

2. For every symptom there is some definite cause, if we can but locate it.

3. Most chronic conditions still diagnosed as disease entities are in reality merely symptoms that rapidly vanish when the infection causing it is located and properly treated.

4. Infection of the glandular structure of the uterine cervix is of such frequent occurrence and of such grave importance as to be the origin of more symptoms and more pathology and more invalidism than any other gynecological condition.

5. Many chronic sufferers are such as a result of an unrecognized chronic maxillary sinus infection and, regardless of the severity or the location of the symptoms, any treatment short of clearing up such an infection will be of little permanent benefit.

6. The doctor who is skilled in searching out and eradicating *all* foci of infection is going to be an outstanding man of the future, and, while treatment along old lines is helpful, it is not essential to the curing of many chronic patients.

7. Chronic patients almost regardless of age, whose symptoms are not of too long duration, when thoroughly detoxicated, tend to get back to normal again, regardless of the kind of general treatment given afterward.

METHODS OF IMPROVING MINING CAMP SANITATION FROM THE STANDPOINT OF INDUSTRIAL MEDICINE.*

By J. G. BENTLEY, M. D., Blackwood, Va.

The specialty, industrial medicine and surgery, has thrown the practice of medicine in intimate contact with industry. Up to ten years ago the medical profession, while it dealt largely with workers, cared for and studied their cases individually as private cases. In industry the problems of public health, preventive medicine, and preventive surgery were untouched and unknown. Industry to the physician was a huge, indefinite machine and its workers suffered directly because of accident, or, indirectly, because of disease brought on by conditions of environment. The doctor working in an industrial community recognized possibilities of relief, but his opinion was seldom sought and the State confined its activities to general health supervision. In 1912, Workmen's Compensation Acts came into effect in many States, and under the spur of neces-

*Read before the Wise County Medical Society, July 13, 1927.

sity the surgical risk of industry began to receive attention and corrective action. (Let me not go further until I give credit to Drs. W. Irving Clark and Harry E. Mock, for it was from their literature that this paper is compiled). The science of industrial medicine began to develop soon after the beginning of the year 1912. The field has gradually broadened. With the treatment and after-care of accidents as a beginning, physical examinations, diagnosis and treatment of sickness, control of sanitation, general publicity on health matters, housing, etc., have rapidly become part of the industrial physician's work.

I have so far spoken only of industries, but since we live and work in a mining community, and since I wish to present to you a method of maintaining good sanitation of a mining camp I shall speak only of mining camps.

The majority of large modern mining camps have good sanitation from an engineering standard. The ventilation facilities are adequate, the plumbing of the dwelling houses and other buildings is well executed and the drinking water excellent. It will be found, however, that although the basic installation is satisfactory, the good effects are in many cases lost because of the lack of attention. Good toilets become foul from neglect, ventilating systems fail to work from lack of proper attention. What is everyone's business becomes no one's business and, as a result, sanitation is poor.

All the sanitation exclusive of its engineering features should be under the control of the Chief Physician and he, and he alone, should be responsible. To carry on this branch of work, he should have at his command a force of cleaners who carry on their work under him. The sanitary department should be thoroughly organized and run on exactly similar lines to those in use in other departments. As soon as the whole sanitation of a mine is placed under one head, instead of being scattered through a number of departments, a thorough system can be developed and a maximum efficiency attained. The actual work of sanitation can be then organized along lines somewhat as follows:

To each section of the mining camp a special workman is assigned and each man thus assigned is given a definite duty. Thus, some will be cleaners and sweepers of offices, commissaries, etc.; some street cleaners and garb-

age collectors; others clean and care for toilets and drinking fountains. Each man has his specific job and is responsible to his foreman who in turn is responsible to the camp physician.

The physician should make sanitary rounds at regular intervals, inspecting especially the condition of the toilets. No odor, no matter how slight, should be allowed to pass without investigation and any improper condition should be remedied at once. When camp sanitation is handled in this way, after the primary clean-up, it is surprising how little trouble occurs. The large majority of people appreciate cleanliness and usually change their habits to conform with their changed sanitary conditions. The visiting nurse should make frequent visits to the homes of the employees and in tactful ways endeavor to teach the housewife the art of cleanliness in and around the house. The physician should make daily inspections of the commissary and meat market; both, of course, should be kept scrupulously clean. The hotel should be watched constantly and should be run under the supervision of the company; the food should be clean, wholesome and of good variety. Hotel and commissary attendants should, previous to employment, undergo a careful physical examination and periodical examinations at monthly intervals thereafter. Should these examinations reveal any disease which might endanger the health or lives of boarders or roomers, the attendant should be at once isolated and treated.

Hand in hand with the above methods for the improvement of sanitary conditions of a mining camp must go carefully planned educational campaigns on disease and accident prevention; on the value of proper diagnosis and early treatment when disease conditions develop; on the fallacy of patent medicines and the danger of employing quacks; on the value of proper diet, the need of drinking freely of pure water during working hours, the necessity of daily outdoor exercise and on the subject of hygiene and sanitation in the home.

From the foregoing it will be seen that the work of the medical department falls into three divisions, medical, visit-nursing and sanitation,—each of these having special functions and contacts with other departments in the mining camp.

The medical department acts as a health

center for the camp, its personnel consisting of the chief physician and his assistants and nurses. It is in close contact with the safety, engineering, and employment departments, and is allied with the visiting nurse service. The visiting nurse service forms the link between the medical department and the sick or injured workers. It also acts as a bureau of information. The sanitary section has for its function all cleaning and sanitary inspection and control in the camp. It should be administered by the physician or a trained sanitary officer.

To effectively improve sanitary conditions in a mining camp, physical examinations of all employees should be made and conducted by the health department. The object of this examination is to determine the physical condition of the prospective employee, in order that he may be placed at work for which he is properly fitted; to prevent contagious disease being introduced into the camp, and to enable the medical department to have a record of every worker's physical condition at the time he enters the employ of the company. The physical examinations in this industry should be similar to that of the Army and Navy, but lay emphasis on certain points which experience has shown are of special importance. These are:

1. The functional power of the heart.
2. The presence of signs of active or latent tuberculosis.
3. The presence of hernia or weakness in the hernial region.
4. The function of the joints.
5. The presence of varicose veins or varicose ulcers.
6. Active contagious diseases of any kind.
7. Blindness of one eye or partial loss of vision of both.
8. Deafness.
9. The condition of the back.
10. Painful flat feet.

The importance of these defects lies not in the fact that they may incapacitate the worker, but that they are defects which may be overcome by treatment and correct placing at work. The health department should co-operate with the employment department to bring this about, and smooth working between the two departments is imperative. Each must appreciate the technical difficulties of the other—difficulties which are very real.

SUMMARY

1. The department of sanitation should be under the control of the chief physician instead of being scattered through a number of departments.
2. Sanitary inspections should be made at regular intervals by the physician and his staff of sanitary workers.
3. Home visiting by the nurse.
4. Initial and periodical examinations of workers employed in departments where there is a health hazard.
5. Spreading health and sanitary publicity by educational campaigns.
6. The medical department is the health center for mining camp.
7. Physical examination of all applicants for position in this industry.
8. Complete co-operation of the medical department with all other departments of the organization.

TUBERCULOUS MENINGITIS IN INFANCY AND CHILDHOOD— ANALYSIS OF TWELVE CASES.

By N. W. Sisson, B. S., M. D., New York, N. Y.

The purpose of this paper is not to add something new to the subject of tuberculous meningitis but simply to present in an analytical manner the various clinical and laboratory findings as shown by the cases which have recently come under my personal observation. The series, although small, is quite interesting on account of the fact that, of the twelve cases, two occurred simultaneously in the same family. The one, a boy of seven years, was brought to the hospital with the presenting symptoms of headache, vomiting and drowsiness. After a careful physical examination a tentative diagnosis of tuberculous meningitis was made. The following day the father of the patient remarked that he had a daughter at home, age nine years, who had been ill for a few days and whose behavior was similar to that of the boy's. He was advised to bring the child to the hospital for an examination. On admission she complained of headache and drowsiness. Her physical examination warranted a diagnosis similar to that of her brother's. A spinal puncture was done and both cases showed a spinal fluid picture typical of tuberculous meningitis. This diagnosis

was later verified by the presence of acid-fast bacilli in the fluid. This is a rather remarkable coincidence and while an exhaustive study of the voluminous literature on the subject has not been made, I have not yet seen mention of a similar occurrence.

Tuberculous meningitis is not an uncommon disease in children. According to most authorities, it ranks first as being the most common form of acute meningitis seen in childhood. Rarely, or perhaps never, does the disease exist primarily but is associated with a tuberculous process elsewhere in the body, either in the form of a general or miliary tuberculosis, as is most often the case with infants, or an involvement of the lymph nodes or other organs. The late Dr. Holt¹ states that, although it is not infrequent to see meningitis without symptoms of tuberculosis elsewhere, he had never failed at autopsy to find other tuberculous lesions in the body.

ANALYSIS OF CASES

History.—The histories as obtained from parents or relatives are at times far from being accurate, and for that reason the physician has to depend a great deal on his power of observation and physical findings. This is particularly true in dealing with children. Anyone who has had much experience in taking histories from the type of patients which frequent the large free dispensaries can appreciate the previous statement. In practically every case, the presenting symptoms were such as to lead the way for a diagnosis of cerebral involvement of some sort. The chief complaint on admission was as follows: One case complained of fever, irritability and twitchings of lips and hands, followed by coma. Another presented symptoms consisting of cough, fever and convulsions, while another complained of fever only. Three cases complained of fever, vomiting and anorexia. One had headache and vomiting; another had headache, vomiting and drowsiness. Two cases complained of vomiting, drowsiness and convulsions, while another complained of vomiting and drowsiness. One complained of vomiting, convulsions and constipation.

Age.—The youngest case was that of an infant four months old, while the oldest was a girl of nine years. Of the twelve cases studied, eight were in patients under three years of age. Neal² states that, from a study of 662

cases, more occurred between the first and second year of life than at any other time.

Race.—The disease, if conclusions can be drawn from this series, seems to be evenly distributed among the various nationalities. The representatives of the West Indies carry off first honors, while the Negro runs a close second, each having three and two cases respectively. The American, Italian, Polish, Russian, Hebrew and Canadian people had one victim each as a representative.

Family History.—In taking the histories, particular effort was made to ascertain if any other member of the same household had tuberculosis in any form. As a result, only three cases reported a positive history. In one family a sister died of pulmonary tuberculosis at the age of sixteen years, while a brother had been told that he had tuberculosis. In another case the mother died of pulmonary tuberculosis. In the third case the father died of pulmonary tuberculosis while his daughter was in the hospital dying of tuberculous meningitis. The nine remaining cases denied any knowledge of tuberculosis existing in their respective families.

Past History.—Six patients had been well and healthy all their lives, while three gave a history of frequent colds. One had "bronchitis" every few months. Fair health was noted in two cases. Six of the twelve cases were breast-fed as infants. Four were breast-fed for a period of one to four weeks following birth. Two received artificial formulae exclusively.

Temperature.—The range of temperature on admission was between 97 and 102 degree F. Several of the patients developed temperatures much higher than this during their stay in the hospital. Four cases showed definite ante-mortem elevations.

General Appearance.—Three cases were well nourished and did not appear particularly ill when first seen. In all probability these were in the very early stage and, had not lumbar punctures been done, the true nature of the condition would not have been recognized until the delay of several days. Although the symptoms were vague in the early cases, we never failed to get a typical spinal fluid analysis. Frequently we have to differentiate tuberculous meningitis from epidemic encephalitis and anterior poliomyelitis in the early stages. Examination of the spinal fluid will always help and in many instances make the

diagnosis for us. In a study of the spinal fluid in these three diseases, Wilcox and Lyttle³ found that tuberculous meningitis and epidemic encephalitis have a constant and definite deviation peculiar to each of them, and that in the case of anterior poliomyelitis there is no deviation from the normal. Consequently, the spinal fluid findings have a certain diagnostic value. Four cases were acutely ill and lethargic, while three were well nourished but desperately ill. No case was in coma on admission, but this condition developed three to twelve days from the onset of illness.

Fontanelles.—In those patients whose fontanelles were open, bulging was noticed in two.

Heart and Lungs.—The heart was normal in every instance. Two patients had sufficient signs in their chests to warrant a diagnosis of pulmonary tuberculosis while two other cases had suspicious chest signs. The eight remaining cases had negative chests so far as could be determined by physical signs. Of those who were old enough to co-operate in the examination, a suggestive D'Espine's sign was elicited in two, the tracheal whisper being heard to the third and fifth dorsal spine, respectively. Respiration was regular in eight and irregular in four cases.

Abdomen.—The scaphoid abdomen was observed in three cases. Enlargement of the liver was noted in four and normal in eight cases. Palpable spleen was noted in three cases.

Nervous System.—The information obtained from a through examination of the superficial and deep reflexes gives us the best clue as to the true nature of the condition with which we are dealing. Of course, we must appreciate the fact that the presence or absence of certain reflexes depends on the stage of the disease. In the early stage the reflexes are present and much can be learned from their behavior.

The following reactions were observed at the time of the initial examination:

Neck	Patellar	Kernig's
Stiff ----- 5	Normal ----- 4	Absent ----- 10
Normal ----- 7	Absent ----- 2	Present ----- 2
	Hyperactive ----- 6	
Brudzinski's	Babinski's	
Absent ----- 4	Absent ----- 9	
Present ----- 8	Present ----- 1	

The pupillary signs were as follows:

Normal in reaction, size and shape -----	1
Reaction sluggish, size equal -----	4
Reaction sluggish, size unequal -----	2
Irregular and immobile -----	2
Sluggish and dilated -----	1

Strabismus (developed with onset of meningeal involvement) ----- 2

The reaction of the pupils constitutes, in my opinion, one of the most important signs by which we have to make a correct diagnosis in tuberculous meningitis. It happened that in this series three or four cases were diagnosed almost entirely by the nature and reaction of the pupils. In the early stage a slightly sluggish reaction may be the only abnormal feature observed, but, later, in the disease, unmistakable signs will nearly always be present. Every case in this series showed pupillary changes which were abnormal. In the later stages the widely dilated and often irregular pupils are quite diagnostic.

Tache Cérébrale.—The tache cérébrale was positive in seven cases and negative in five.

Associated Diseases.—One case presented a marked degree of rickets while three had pulmonary tuberculosis. One other patient had miliary tuberculosis and developed meningeal involvement while in the hospital.

Duration of Disease.—The shortest time existing between the onset of symptoms and death was five days. The longest duration was eighteen days. The majority of the cases went two weeks before the inevitable termination came. Kerley⁴ mentions a case which lived six weeks after the onset of symptoms.

Intradermal Reactions.—In performing the intradermal tests, one-twentieth and one-tenth milligrams of O. T. Tuberculin was injected intradermally in infants and children respectively. The site of injection was observed daily for a period of five days, and, if negative, on the fifth day the dose of tuberculin was doubled and the child observed for five more days. At the end of the observation period, eight cases showed a positive reaction and four were negative. The negative reactions could be explained in either of two ways: First, the child's resistance had been so reduced by the chronic process elsewhere in the body that he lacked the fight, so to speak, to produce a reaction to the tuberculin. Second, a massive overwhelming infection may have prevented the reaction from becoming positive.

Leucocytes.—One case had a white cell count of 6,000, of which 52 per cent were polymorphonuclear leucocytes and 48 per cent small lymphocytes. Incidentally, this case had the highest percentage of lymphocytes in the series. The remaining cases showed a leucocytosis ranging from 12,000 to 26,000, the average

being 16,498 per c.m., with an average polynucleosis of 69.6 per cent. If white cell counts are done every few days it will be noticed that as the disease progresses toward the fatal termination, the leucocytosis becomes greater, as well as the percentage of polymorphonuclear leucocytes.

Morgan⁵ concludes that there is a definite relationship between the intensity of the tuberculin skin reaction, on the one hand, and the total leucocyte count and polymorphonuclear percentage on the other. Diminution in the former is usually accompanied by an increase in the latter, both being an indication of a failing resistance by the body to the tuberculous infection. Of the three cases with negative intradermals in this series, each had an average leucocytosis of 21,460. All three cases were above 19,000.

A study of the foregoing table reveals several interesting facts. At a glance, one will notice the relatively low values of the sugar concentration in the cerebrospinal fluid as compared with those of the blood. Ordinarily, the sugar concentration of the cerebrospinal fluid should be approximately one-half of that of the blood.

Schloss and Schroeder⁶ found that a large proportion of cases of tuberculous meningitis show a decrease in the sugar content of the cerebrospinal fluid at some stage of the disease, while a few cases will show a normal value at all times or slightly diminished. In this series every case showed a decrease in the sugar concentration as compared with the normal.

The qualitative (Benedict's) test for sugar was negative in nine cases and positive in three. Every case showed positive tests for albumin and globulin.

The cell count ranged from 60 to 550 cells per cmm. The predominating type of cell was the small lymphocyte. In no instance was the fluid distinctly cloudy.

Another interesting fact demonstrated in the series was the diminution of the spinal fluid chlorides. The entire group of cases, with only one exception, showed chlorides ranging from the lower limit of normal to subnormal values of a considerable degree. There was a general increase in the protein values, a fact which was of much diagnostic importance.

The series was evenly divided according to sex, each having six cases.

Recovery of Organisms.—The tubercle ba-

No.	Date	Age	Sex	Pressure	Color	Cell	SPINAL FLUID				BLOOD				
							Albu-min	Glob-ulin	Bene-dict	Sugar	Chlo-rides	N	NPN	Pro-tein	Sugar
1	1-14-26	13 Mo.	Fe	***	Clear	60	***	***	*	35	667	35	13	138	109
2	1-16-26	"	"	*	Clear	110	***	***	**	50	668	58	21	231	597
3	2-8-26	8 Mo.	M	**	Clear	275	***	***	*	45	668	34	11	144	538
4	2-9-26	"	"	**	Clear	260	***	***	0	18	655	44	16	175	164
5	2-11-26	"	"	Nor	Clear	165	***	***	0	18	655	35	8	169	94
6	2-13-26	"	"	Nor	Clear	370	***	***	0	18	661	96	22	463	100
7	3-15-26	4 Yrs.	M	*	Clear	180	***	***	0	25	620	57	17	250	118
8	4-3-26	3 Yrs.	M	**	Opal	190	***	***	0	15	644	24	14	625	106
9	4-4-26	7 Yrs.	M	***	Clear	200	***	***	0	47	644	150	100	313	118
10	4-6-26	"	"	**	Clear	205	***	***	0	28	644	20	39	110	106
11	4-8-26	"	"	**	Opal	180	***	***	0	30	644	59	235	225	106
12	4-10-26	"	"	Nor	Opal	150	*	*	0	31	573	16	8	50	118
13	4-12-26	"	"	*	Clear	160	***	***	0	40	690	43	20	144	118
14	4-26-26	"	"	Nor	Clear	140	***	***	0	33	690	57	7	313	118
15	4-14-26	2 1/2 Yrs.	Fe	**	Clear	120	***	***	0	20	714	61	12	303	120
16	4-28-26	20 Mo.	M	**	Opal	850	*	*	0	37	620	26	14	75	105
17	5-31-26	2 Yrs.	M	**	Clear	120	*	*	0	14	655	26	14	75	105
18	6-2-26	"	"	Nor	Clear	68	*	*	0	21	655	26	14	75	105
19	6-10-26	7 Mo.	Fe	**	Opal	160	***	***	0	32	655	26	14	75	105
20	6-12-26	"	"	Neg.	Clear	240	***	***	0	32	655	26	14	75	105
21	6-24-26	4 Mo.	Fe	**	Clear	350	***	***	0	32	655	26	14	75	105
22	7-13-26	7 Yrs.	Fe	**	Clear	300	***	***	*	32	655	26	14	75	105

* = Positive.

Clotting Tap

cilli were found in only three cases. This low percentage in all probability was due to a lack of persistence on the part of the technician in examining the smears. In the great majority of cases, the organisms are present in the spinal fluid and will be found providing sufficient time is spent in looking for them. Hemminway,⁷ in studying 138 cases, found the organisms in 135.

Mortality.—The mortality was 100 per cent. This seems to be in accord with the results published by other writers on the subject. Meyers⁸ reports a similar mortality rate from a study of 105 cases.

X-Ray.—The X-ray of the chest showed two cases of miliary tuberculosis and two of pulmonary tuberculosis.

CONCLUSIONS

1. The great majority of cases occur under three years of age.
2. The duration of the disease was less than three weeks.
3. The disease is equally divided between the two sexes.
4. All patients died in coma, the appearance of which ranged from three to twelve days from onset of illness.
5. A leucocytosis is nearly always present in the disease and it increases as the disease progresses toward the fatal termination.
6. The spinal fluid furnishes the criteria for a correct diagnosis in the early stages as well as the late stages. A clear spinal fluid showing low sugar and chlorides with an increase in the protein is more or less pathognomonic of tuberculous meningitis.
7. The tubercle bacilli are usually found if sufficient time and energy are spent in searching for them.
8. Mortality is invariably 100 per cent.

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THE NECESSITY FOR A CAREFUL PRE-OPERATIVE MEDICAL EXAMINATION OF SURGICAL PATIENTS, AND THE THE RECOGNITION OF POST-OPERATIVE MEDICAL COMPLICATIONS.*

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The notable progress made in surgery during the past few years has been both the cause and the result of a greater precision in diagnosis, and the development of better operative technic. The safety of surgery as a procedure is so encouraging that we are daily employing this method of relief not only to rescue a threatened life—an emergency procedure—but also for the relief of many forms of chronic disability—deliberative surgery. In proportion as the laity recognizes these facts do they enter the hospital for surgical treatment with much less of foreboding.

Coincident with the progress made in surgery, have impressive advances been made in all branches of medicine. The basis for these advances in both surgery and medicine has been a more thorough understanding and utilization of the fundamentals of medicine. We have learned from physiology that no part of the human organism is independent of the whole, but that the function of each organ is definitely related to the function of other organs in the maintenance of health, and that pathological physiology may precede organic change. We have learned from pathology that the structure of an organ changed by disease results in a perverted function of varying degree, transient or progressive.

The advance in surgical diagnosis has rendered accessible organs and systems formerly regarded as inaccessible. This has resulted in a definite specialization, requiring for its practice a high degree of technical skill, elaborate equipment, and concentrated attention in a

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limited field. For the utilization of the achievements attained in these specialties, it is becoming more apparent every day that a physician must be familiar with these achievements if a patient is to reap the benefit from the great advances. Just in proportion as this knowledge is assimilated by the profession, is it possible to have a correlation of these various activities for the benefit of the patient.

This newer knowledge requires that the patient be viewed from many angles. Not only must we locate the pathology, but we should attempt to determine to what extent the bodily activities as a whole have been affected by the abnormal condition. As the medical practitioner will never be able to carry out the technical details of surgery or of the surgical specialties, so the surgical specialists should not be expected to be familiar with or capable of applying the details of medicine or of the medical specialties. It is often necessary, therefore, to subject the patient to unusual examinations before we can arrive at a complete diagnosis. Should the case prove to be a surgical one, other facts must receive consideration.

The question becomes not merely the indication for surgical treatment, but an evaluation of the patient's physical and mental condition before being subjected to a surgical procedure. The evaluation is particularly applicable from the standpoint of the cardio-renal system, for without a reasonable assurance of the functional efficiency of the heart and kidneys, the advisability of a deliberate operation may be questioned. An attempt should be made to determine the status of these organs by all means at our command. Too frequently the surgeon takes for granted that the physician with whom the case originated has already carried out these studies, and will live up to the hospital requirement by having a casual examination made by the interne just before the patient is carried to the operating room. The surgeon must be satisfied that these points have been carefully covered by a competent man before he can rid his own conscience of personal responsibility in the event that the post-operative course of the case is attended by medical complications which may have been predicted prior to operation. The development of a careful operating technic, the training of an operating team, the presence of a skilled anæsthetist, and the application of correct post-operative surgical treat-

ment may be completely negated by an unfortunate or too hasty acceptance of an unsuitable deliberative surgical case. In the future we must look for advance in surgery, not so much along the line of improved methods in operative technic, as in a wiser application of knowledge gained from a more comprehensive pre-operative study of the patient. We believe operative mortality can be further reduced by a careful medical supervision before surgical procedures are undertaken, delaying the operation if necessary until the patient is in the most favorable condition to pass smoothly through the operative and post-operative periods. Surgery has been made safe for the patient; now let the patient be made safe for surgery.

Surgical patients may be divided into two groups—the emergency and the deliberative. In the emergency group there is not sufficient time for a thorough examination; the urgency of the need demands immediate operation.

The majority of patients come under the deliberative group, where surgical haste is not essential. A reasonably good surgical history should reveal the presence of such gross conditions as diabetes, hyperthyroidism, and diseases of the prostate gland, but equally important and more insidious are the complications that may accompany anemia, asthenia, obesity, inanition, dehydration or acidosis.

A more careful inquiry might bring to light the history of an infection in early years, such as rheumatic fever, scarlatina, typhoid fever, or chronic bacterial foci, all notorious for their effect on the heart, blood vessels and kidneys. Low grade progressive changes in these organs may be present without symptoms until functional tests suggest the presence of actual pathologic change, and it is upon the necessity of carrying out this particular observation that I would place the greatest emphasis. In this same category would I place the person of middle age or more, in whom, without a history of a direct cause, degenerative changes have taken place or are beginning to occur. Not infrequently in patients of forty-five years we can elicit a history of dyspnea, palpitation, precordial or thoracic pain on slight exertion, transient edema about the ankles, insomnia, fatigability, periods of depression, vertigo, a sense of fullness in the cranium. The clinician who properly evaluates symptoms may deduce from them evi-

dences of cardiac weakness or vasomotor instability, which perhaps may precipitate circulatory embarrassment if the operation is undertaken before the patient is adequately prepared.

By what means are we to determine the efficiency of the vascular system?

1. The size of the heart as indicated by its tranverse diameter, ascertained by percussion and if necessary by X-ray, also any change in retrosternal dullness, which is especially suggestive of aortic disease, luetic or sclerotic.

2. The most important thing to determine is the efficiency of the heart muscle. The attention should be concentrated particularly upon the character of the first sound at the apex. As the cardiac muscle supplies the force which maintains the circulation, the quality of the sound made by the muscle during contraction is a good index of the state of the muscle. When changes occur in the heart muscle, there is a change in the quality of the first sound. As the muscle element of the first sound diminishes or approaches in character the second sound, can we reasonably infer that the myocardium has suffered some change. The functional effect of exercise should then be noted.

It may not be amiss to mention the significance of an irregularity of the heart and tachycardia in evaluating a surgical risk.

Irregular heart action has occasioned much perturbation to many patients. In young persons an extrasystole generally is of no significance. The mental state preceding an operation often induces an irregularity which had not been previously observed. Extrasystoles are frequently found in normal hearts, but they may be of much significance in a person of middle age or older. Detection of an irregularity indicates the necessity for a further study of the heart to determine its significance.

Rapid heart action probably attracts more strongly the attention of the surgeon than anything else in examining the circulatory apparatus. If due to psychic causes, as is often the case, it should not cause apprehension. When the rapidity persists, it may, like an arrhythmia, be the indication of a degenerative process or an intoxication from the thyroid, or tuberculosis, or a focus of infection.

An examination of the vascular system is

not complete until the pulse has been studied, observing its volume, rate and rhythm and the manner in which it is sustained.

3. Blood pressure readings give important information. Especially significant is an increased diastolic reading, as this represents the pressure in the arteries between the heart beats. Just in proportion as this is persistently above the normal figure does it suggest permanent change in the vessel walls, and a continuing increased demand on the left ventricle. As the functional efficiency of all parenchymatous organs depends upon the rate of flow rather than on the volume of blood in an organ, a study of the pulse pressure gives us an approximate index of the functional possibilities of an intact organ, and a reasonable inference as to a much lower function in proportion as the organ is the seat of organic change, for instance, the kidney. An intra-ocular examination to determine the condition of the retinal vessels is an important feature in the general examination of the patient.

4. As the kidneys are a unit of the circulatory system, they must be considered along with the heart and blood vessels. Their functional efficiency must be determined by means other than the routine urinalysis. We must remember that a single normal specimen of urine does not preclude the possibility of a lesion existing in the urinary tract. An examination of the twenty-four hour urine is preferable. When there is any doubt about the integrity of the kidney, our information should be supplemented by a blood urea examination, the phenolsulphonphthalein test, and the fixation of the specific gravity.

5. It is as important to make a red cell count and hemoglobin estimation before operating as it is to make a leucocyte and differential count. The existence of a moderate anemia does not contraindicate operation if the general condition of the patient is otherwise good, the anemia not progressive, and its cause probably apparent. Should a progressive anemia be not due to the condition for which surgical relief is sought, the cause of the anemia should be understood before deliberative surgery is undertaken. In the blood examinations, a study of the size and staining peculiarities of the red cells should be noted in all cases of severe anemia.

While we are endeavoring to make the pa-

tient safe for surgery, it is well to bear in mind a few conditions that will sometimes cause post-operative circulatory disturbances in cases where the heart is apparently normal prior to the operation. They may originate in the mental attitude of the patient preceding the operation, or be brought about by the manipulation during operation, or for some unknown reason follow the operation. We might consider first the effect of fear which may, if prolonged, cause a depression of the vital functions.

Fear is present to some extent in the majority of patients confronted with an operation. In some cases the apprehension assumes such proportions as to become a real obstacle to the operation. There is a discharge of energy not consumed by muscular activity in fight, flight or fright. We do not know whether morphological changes with exhaustion of the vital centers of the brain occurs, though we have observed patients in whom the element of fear predominated, die following the operation without obvious cause. We might assume that fear combined with trauma produced exhaustion, the heart became fatigued, and the blood pressure fell, due to a diminished cardiac output and vasomotor relaxation. A picture of circulatory collapse is presented, not unlike that of shock.

The term surgical shock is applied to a complex of alarming symptoms developing during or immediately following an operation. Exposure and trauma of the abdominal viscera, even without extensive hemorrhage, may induce shock. The mechanism by which shock is produced is complicated. Probably several factors are responsible, such as the liberation and absorption of histamine from the traumatic area, as set forth by Cannon, or the failure of the veno-pressor mechanism, as enunciated by Henderson. As the splanchnic vessels dilate, the blood pressure decreases, and the heart rate becomes rapid and feeble. The vasomotor center increases in tone, thus attempting to redistribute the blood, though, when shock is severe, this center may not respond fully to meet the demands.

The endocrine glands have been mentioned as factors in producing shock, the adrenal gland especially being mentioned in this connection. Some physiologists claim there is an increased secretion of epinephrine in emotional states; others have demonstrated that

in conditions of low blood pressure there is an increased amount of epinephrine in the blood. Probably the suprarenal glands are factors in the complex condition of shock, but it is difficult to determine to what degree they participate as primary agents in producing the condition, or how much they are affected by the low blood pressure and the changes incident to the condition itself.

Whatever the causes of shock may be, its manifestations are pronounced, especially the disturbance in the circulatory system. The rapid and weakened heart is due to improper diastolic filling which results from the small quantity of blood in circulation. As the volume of circulating blood becomes progressively smaller, the heart muscle continues to weaken, consequent upon the failing blood supply through the coronary vessels, and this again through the curtailment of blood in actual circulation.

In spite of many prophylactic measures, pneumonia as a post-operative complication still occurs. It seems to occur more frequently in cachetic persons and in the elderly in whom pulmonary changes, such as emphysema, have taken place. When it occurs, there is an added toxemia, the manifestations of which may vary. Adequate supportive measures must be employed. The effectiveness with which the heart is maintaining the circulation may be determined by its size, the character of the sounds, its rate and rhythm, and the quality of the pulse.

Massive collapse of the lung occasionally occurs after an operation. The early symptoms are similar to those of pneumonia, but the ease with which a collapse is diagnosed, combined with the knowledge that there is no invasion of the blood stream by organisms, lessens our apprehension. The disturbance in the heart action soon subsides.

CONCLUSION.

Surgery is not merely a question of operating. The surgeon must possess skill, but more than skill in performing an operation is necessary. It is his duty to know the condition of his patient before subjecting him to an operation. The proper evaluation of the general condition is as important as the indication for surgical treatment. A comprehensive study should be made of all patients prior to anticipated surgical procedures, for only by this

means will a too hasty acceptance of an unsuitable risk be prevented. By exercising greater care in preparing all patients so that the anxieties, the discomfort and the ordeal incident to the operation will fall as lightly as possible upon them, will elevate surgery to a higher plane.

Stuart Circle Hospital.

WHY A COUNTY MEDICAL SOCIETY.*

By C. B. GREAR, M. D., Honaker, Va.

With my attempt to present the subject of this paper, I will first ask you to kindly accept it in the spirit in which it is written—that of an attempt to inspire each of us, and myself in particular, with a more active interest in placing Russell County Medical Society on a sound and stable basis. With this object in mind, I trust each of us will do our best to co-operate with our leadership at all times.

While men yet wandered through the jungles of antiquity with big sticks, there were born in the world certain influences which resulted in the building of the highest form of civilization known to mankind—more especially that of *fellowship*. About the same time certain other births took place, the most detrimental of all being ignorance, superstition, suspicion, etc. The birth of these latter instincts was the direct result of conditions then existing in the world. Down through the ages these instincts have been transmitted from parent to child and to this good day they have not been entirely eradicated from our minds and lives, making unpleasant obstacles for us to overcome.

During the birth and infancy of civilization the present primitive instincts ran rampant in the lives of each individual. Combats with natural laws and animal life then existing, and with antagonistic clans, all doubtless combined to place man on the defensive. In each effort to place civilization on a higher and more sane basis, these prehistoric inhibitory intuitions have continued to make themselves manifest as a result of former environment and heredity, the impress of which it will yet probably take ages to eradicate entirely.

Of all the instincts born during antiquity, that of *fellowship* has done more to advance the cause of civilization than all other factors combined. Without fellowship, civilization

would not survive over night; and it has not yet been developed to the highest state of perfection possible, in order that peace on earth and good will to men may obtain in the world.

Upon this principle of fellowship men have tamed the most ferocious beasts. There would be no domestic animals to serve the purposes of man were it not for his ability to eradicate fear from animal life. Trainers of the wildest animals say the reason why they fight is caused by their fear of each other, and more especially are they afraid of men.

Fellowship and its twin, brotherhood, go hand in hand, and are intimately allied with all efforts to better the condition of mankind. Without these, the world would soon be in a state of chaos. We hear right much of our relationships with the monkey family, the missing link, etc. I do not happen to be in position to substantiate the claim of either, but one thing is certain, we physicians act very much like monkeys in our contacts at times. We will not do to suit the other fellow and the other fellow, consistently refuses to do to suit us, and thereupon hangs a monkey "tale". Our use of this monkey instinct has retarded the wheels of progress more than it would be humanly possible to estimate.

So much for the monkey business. One thing is certain,—civilization cannot endure without fellowship; fellowship cannot endure without brotherhood, and co-operative efforts. The World War very clearly demonstrated might was not right, but through the brotherhood and fellowship of men and of nations, civilization was saved for the universal good of all. Precept and persuasion have done more to really inspire men to do right than all the wars that have cursed Christendom.

The central thought I wish to convey is: The Russell County Medical Society is dependent on *fellowship*; and without fellowship we exhibit relics of chaos and confusion. Our greatest immunity against decay, stagnation and ultimate degeneration as a medical fraternity is produced by a healthy and active interest in our County Medical Society. If we are to keep step with the important events of the world's progress in medicine, we must meet, inspire and permit ourselves to be inspired by our fellow men. Were the outstanding leaders of the medical fraternity to withhold their knowledge and inspiration from

*Read before the Russell County Medical Society, March, 1927.

the world, disease and pestilence would soon exterminate the human family. Large numbers of physicians have sacrificed their time, their health and their lives that we might be afforded knowledge in the science of treatment and preventive medicine, yet we "mossbacks" sit here in the sticks too dilatory to attend an occasional meeting of our County Medical Society. The shame of it is a stigma on the escutcheon of each of us, and I for one confess to my part in this dereliction of duty.

The future of the medical fraternity depends upon leadership, leadership must depend upon co-operation, and co-operation must have its incipency in the rank and file of the entire profession. Random and promiscuous efforts never do more than to blaze the trails. It takes organization and concerted effort to produce results. With the countless cults and isms, like mush-rooms springing up on a sheep path over night, to deal with, and the fake advertising done by these people, there is left something for physicians to think about.

The following are some of the leading reasons why we should function as a County Medical Society:

It will make us better men to meet and continue to get more thoroughly acquainted with each other.

It will make us broader and more capable as physicians to meet and exchange opinions. If we differ, let us do it in a friendly manner, and thereby refuse to kill the goose that laid the golden egg.

It will increase the respect and confidence of the public in the medical profession as a whole and in us as individuals.

It will sharpen our business acumen and help us to forget the problems that wear and rasp on the nerves of men.

It will broaden our vision of usefulness and prevent us from becoming prematurely old and self-conscious.

Last, but not least, it will help us to cope with problems ever confronting the medical fraternity, such as that of state medicine, the oncoming waves of fictitious advertising of nostrums, cults and the numerous pathies of divers kinds too numerous to mention, but always flourishing.

THE FREQUENCY OF A TUBERCULOUS INVOLVEMENT OF THE RIGHT LUNG AS DETERMINED BY PHYSICAL EXAMINATION AND X-RAY FINDINGS.

By L. M. HINES, M. D., Sanatorium, Va.
Blue Ridge Sanatorium.

Since the discovery of the tubercle bacilli by Robert Koch in 1882, the medical world has been in a constant turmoil, endeavoring to learn all there is to know about this great scourge, not only the clinical aspect, but the best treatment and to find a cure, if possible. All during this time, great interest has been aroused by the frequent inquiries as to which lung seems to be first involved clinically, most extensively, and why? We have been taught that the right lung was usually the first to be involved, but I can find no definite proof given anywhere in the literature that will confirm this statement. Of course, to determine this, many factors must be considered.

This report deals with an analysis of 850 cases that entered Blue Ridge Sanatorium and were completely worked up from every available angle. The two factors we consider most important are physical examination and X-ray. Of course, the history, blood work, urine analysis, sputum examination, etc., are taken into consideration; but all these cases had definite signs of tuberculosis on physical examination and were confirmed by X-ray; all other cases not definitely diagnosed were omitted.

In making a physical examination, there are certain anatomical differences which suggest abnormal signs in the right lung as compared with the left, and these should be constantly in the mind of the examiner that he may guard against such errors. They are as follows:

1. The right lung as a whole is larger than the left.
2. The right bronchus is larger than the left and closer to the chest wall anteriorly.
3. The apex of the right lung may extend higher in the neck than the left.
4. Normally, there is more broncho-vesicular breathing in the right apex than in the left.

Admission examinations were made and all cases classed according to the outline adopted by the committee on classifications of The National Tuberculosis Association. Then, all cases were X-rayed within one week after admission to the Sanatorium, and in most cases

there was not more than twenty-four hours difference between the physical examination and the X-ray stereo-films which were read by the Medical Staff independent of the physical findings.

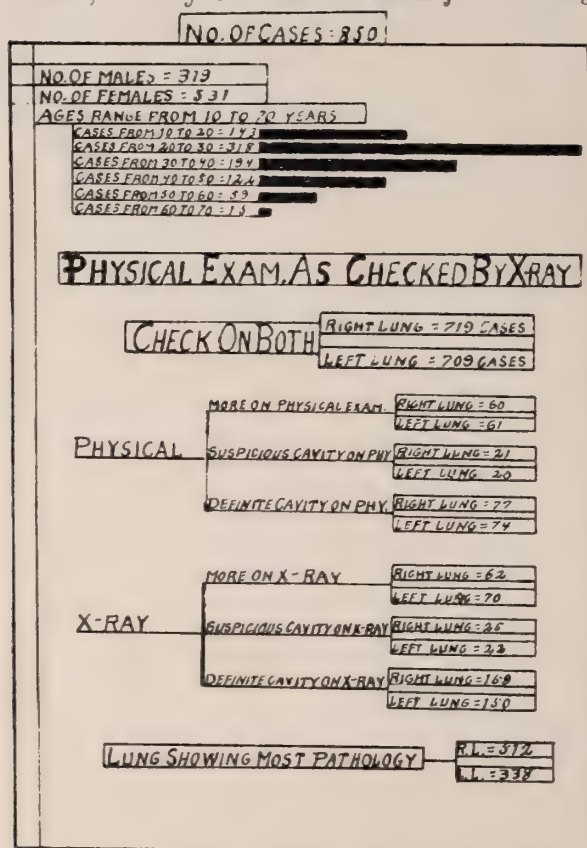
Out of the 850 cases reported, 531, or 62.5 per cent, were females, and only 319, or 37.5 per cent, were males. This does not mean there is more tuberculosis in females, because we have more applications for females at Blue Ridge than we do for males, and therefore have a greater capacity and more accommodations for females. There is perhaps just as much, if not more, tuberculosis in males, but in most cases they are the "bread-earners", and it is a greater sacrifice for them to stop work and go to a Sanatorium to take the "cure", so they continue to work just as long

You will notice by referring to the accompanying age chart that clinical tuberculosis as seen in this Sanatorium is more prevalent between the ages of 20 to 30,—with 318 cases, or 37.4 per cent. There are perhaps many reasons for this. I shall mention only a few:

1. This is the age of dissipation.
2. "Stress and strain of modern life".
3. Young people just starting out in life and business overwork, trying to make good, become nervous, worried and rundown.
4. Irregular habits.
5. Inadequate clothing.
6. Pregnancy, long labor and long lactation in females.
7. All the above mentioned factors tend to lower the body resistance and thus allow tuberculosis to gain a foot-hold.

After the age of 30 to 35, there is a steady decline in the amount of tuberculosis found; from 30 to 40, 22.8 per cent; from 40 to 50, 14.4 per cent; from 50 to 60, 6.8 per cent; and from 60 to 70 only 1.8 per cent. This is because older people live a more regular life, take better care of themselves, and there has usually been a certain amount of immunity developed in all cases.

By combining the physical examination with the X-ray, we found the right lung to be more extensively involved and to show the oldest lesions in 512 cases, or 60.2 per cent, while the left lung was involved more in only 338 cases, or 39.8 per cent. But as to why the right lung is involved more frequently than the left is problematic,—much research having been done along this line by some of the German scientists, none of which has been accepted. The fact that in this series 60.2 per cent were on the right side is significant and makes us wonder more as to its cause. Would it not be worth while to reason, if the greatest number of foreign bodies entering the lung by aspiration go into the right side, and if we accept the present theory of Gohn that the majority of tuberculosis is contracted through the inhalation route, that tubercle bacilli breathed in might lodge more frequently in the right lung than the left, and in this way account for greater involvement on the right side? Another possibility is that we have more people who are right handed and the increased amount of exercise and motion of the right shoulder may increase the susceptibility of the right apex. We assume, of course, that the reason



This diagram is simply a resume of the complete work, showing the number of cases studied, number of males compared to number of females. The age chart, showing when clinical tuberculosis is most prevalent, and the comparison of the physical findings with X-ray, cavities, most pathology, etc.

as possible, and frequently, when they do stop and give up, the disease has advanced beyond control, and they spend their last few months at home instead of at the Sanatorium.

why the apices are usually the first to be attacked is: Because of the relative stagnation of the lymph in the upper lung and because of inefficient respiratory movements and early pleural adhesions allowing concentration of the tuberculous poisons. Again, more people sleep on their right side, and the relative change from an anemic state at night to a hyperemic state during the day may have some significance. However, these are merely suggestions. On the converse, we do know that when the left lung is involved, it is usually of a more serious nature. This is shown by a recent review of our pneumothorax cases—60 per cent of which were on the left side.

One of the interesting things in this analysis and review is the frequency in which cavities were found on X-ray that had been overlooked on physical examination. The tables show that only about half of the cavities were found on physical examination that showed up on X-ray. There are certain conditions which must exist before a cavity can be diagnosed by physical means:

1. Location:—Naturally, if superficially located with thick walls surrounding it, or an area of consolidation, the signs would be exaggerated, but if deep seated with normal lung surrounding it, the signs would be difficult to elicit.

2. Surroundings:—The signs will vary according to the thickness of the surrounding wall, amount of consolidation, etc.

3. Contents:—(a) Empty.—If empty, with a rim of scar tissue which is fairly elastic, there is no trouble in determining its presence.

- (b) Full.—If a cavity is filled with debris, the signs may be overlooked.

4. Condition of bronchi leading to cavity:—If bronchi be stenosed due to fibrous tissue, etc., the physical signs would not be elicited.

5. Size:—A very small cavity may be found if superficially located, while one of considerable size may be overlooked when deeply seated, especially in the lower lobe, or under the shoulder joint.

The physical signs of a cavity are:

1. Percussion:—(a) If superficially located and not too much density overlying it, we usually get dullness, though rarely we may have hyper-resonance.

- (b) "Crack-pot resonance", if large.

2. Cavernous or amphoric breathing.

3. Whispering pectoriloquy:—This is one of the main diagnostic signs, and, when present, it means the cavity is empty; it usually has a thin wall of fibrous tissue surrounding it, and is in close proximity to the chest wall and communicates with one or more bronchi.

4. Gurgling or consonating rales:—Rales may or may not be heard according to the activity of the case, but, when heard, they are usually gurgling or consonating, and have metallic character, heard more distinctly when the cavity is fairly dry.

5. Post-tussive suction:—This sign, when present, may be considered diagnostic. It comes with the expiratory cough and is heard as an echo or rebound of the cough sound. Its mechanism is thought to be due to the vibration of the walls of a cavity.

In this series of cases, before a cavity was definitely diagnosed, either whispering pectoriloquy or post-tussive suction were present; if not, then at least two of the remaining signs were present.

There are certain cases that are classed as *suspicious* of excavation, and by this we mean the above signs are indefinite. One or more of the signs may be suggestive, but they are not conclusive.

The pathology from an X-ray standpoint may be considered from two angles—*extent and character*. The disease may involve an entire lung, being soft, flocculent and mottled in character, with little or no tendency to fibrous tissue formation and calcium deposit. Such a process, while extensive, may be of only short duration. However, on the other hand, you may find in the opposite lung, or even in the same lung, large calcified nodes, heavy deposits of fibrosis, or a thick wall cavity, all of which suggest (but does not prove) the site of the oldest lesion. It is not an easy matter in such cases to determine the oldest lesion. A lesion having a localized area of lessened density or an annular shadow well circumscribed and having definite borders, was called a cavity on X-ray, the size usually to exceed 1 cm. in diameter. Other annular shadows being localized but not having definite borders were classed as *suspicious*. We might also put in this class certain consolidated areas, having a rarefied "honey-combed" or punched-out center.

Perhaps it would be interesting to mention some experimental work which is being con-

ducted at the Sanatorium at the present time. We have a record of four cases which were X-rayed after death. The lungs were then removed, inflated and stereo-plates made. They were injected with 15 per cent sodium iodide solution and X-rayed again; then the lungs were carefully dissected, and the autopsy findings confirmed each cavity that had been diagnosed by X-ray, with one exception, and this had been called a "localized area of pneumothorax" on X-ray, but proved to be a very large cavity on dissection. The location was not considered in this tabulation, but we believe the greatest number of cavities are found in the upper lobes, with the right predominating.

CONCLUSIONS

1. The right lung is anatomically different from the left as to the normal physical signs it may produce.

2. 62.5 per cent of the cases reported were females and only 37.5 per cent males.

3. From the class of cases admitted to this Sanatorium, clinical tuberculosis is more prevalent between the age of 20 to 30, 37.4 per cent being in this age. There is a steady decline after this.

4. The right lung was more extensively involved and apparently showed the oldest lesion in 60.2 per cent of the cases; left in 39.8 per cent.

5. Only 50 per cent of the cavities found on physical examination as shown by X-ray.

6. More cavities were found on the right side, but more indications for pneumothorax on the left.

THE TREATMENT OF ABNORMAL OBSTETRICS AT THE LYING-IN HOSPITAL OF NEW YORK CITY.*

By HARRY SUTELAN, M. D., Norfolk, Va.

At the Lying-In Hospital of New York City the parturient women are examined around the seventh month of gestation. At that time a complete physical examination is done and pelvic measurements are taken. The pelvic measurements include the usual external measurements, the interspinous, intercrestal, antero-posterior, and the two Beaudelocques, and the internal, which includes the height of the promontory, the diagonal conjugate and the transverse diameter of the outlet or the distance between the ischial tuberosities. This

diameter is not exactly measured but it is taken as normal if the average fist is insertable between the ischial tuberosities. Simultaneously, a complete history including previous labors and a history of rickets is taken. If the examination reveals some abnormality, the chart of that woman is marked with a red pencil stating the type of abnormality, whether at the inlet or at the outlet. A pelvis with a conjugate vera below 9 c. m. is marked as contracted.

After this preliminary examination the pregnant woman is told to report every two weeks with a specimen of urine. At these times the blood pressure is taken, the height of the fundus measured, the fetal heart counted and the presentation and position of the fetus is noted, also whether engaged or non-engaged.

The woman is thus cared for until she goes into labor. At that time she is allowed to stay in labor for some time. Those cases whose charts are marked with a red pencil are not examined vaginally, but all the examinations are abdominal and rectal. Of course those women whose pelves are normal are examined vaginally every two hours and the fetal heart counted each time. The length of time when women with contracted pelves are allowed to stay in labor before interference is instituted will depend upon the degree of contraction and whether she is a primi- or multipara.

If there is a history of previous fairly easy labors she is allowed as much as twenty-four hours before interference is instituted. This can be easily done with the aid of rectal anaesthesia which allays their suffering very much. The treatment to be instituted will vary according as to whether engagement has taken place or not.

By engagement is meant the passage of the greatest circumference of the fetal head through the pelvic inlet. In occiput presentations it is a question of two diameters of the fetal head passing through the two planes of the pelvis. Dr. Williams maintains that the fetal head engages with the sagittal suture in the right or oblique diameters of the superior strait. On the other hand, DeLee maintains that during engagement the sagittal suture lies in the transverse diameter of the superior strait. In either case the biparietal diameter must pass through the antero-posterior diameter of the superior strait.

There are three methods for determination of engagement:

*Read before the Norfolk County Medical Society, at Norfolk, Va

1. By abdominal palpation. The fingers of both hands of the palpator pass along the abdomen and by gentle manipulation the two poles of the fetal head are located. The fingers are passed downwards along these poles until the upper border of the symphysis pubis is reached. If the fingers of the two hands converge on reaching the symphysis pubis, then the antero-posterior diameter of the fetal head has not yet passed through; if they diverge as they approach the symphysis, then engagement has taken place.

The second method is by inserting the fingers of one hand into the vagina and locating one of the inferior posterior ischial spines. With one finger on the spine, the other finger is spread out to the place where the vertex of the head should be. If it touches the vertex of the fetal head, then the latter is on a level with the spines and the head is engaged.

The third method is available to use only after the cervix is fully dilated. The fingers of one hand are passed along the anterior parietal bone and if on passing up they ascend and then descend slightly or approach the mid-line, then the parietal bosses are already past the superior strait, but if the fingers do not approach the mid-line on passing up along the parietal bones, then engagement has not taken place. It should be noted that not all of these manoeuvres can be carried out on every patient. Continuous labor pains with concomitant rigidity of the lower abdominal wall may make uncertain the abdominal method. A hard and tense caput succedaneum may be mistaken for the bony vertex. But usually one of these methods ought to be available for the determination of engagement.

In primiparae, failure of engagement at the onset of labor should always suggest some abnormality. But in multiparae, engagement very frequently does not occur until the end of the second stage. Failure of engagement in multiparae may be due to several causes. A relaxed pendulous abdomen with atrophied abdominal muscles may delay engagement, by misdirecting the force of the uterine contractions. In such a case a tight abdominal binder will serve to straighten out the child and to give support to the rising uterus during pains.

Very frequently engagement may be helped by raising the patient's knees on her abdomen and pushing back on them during a pain. This serves to decrease the antero-posterior diame-

ter of the outlet and to simultaneously increase the antero-posterior diameter of the inlet and one such pain may be sufficient to bring about engagement. It should be noted that immediately after you have secured engagement, then the woman should be placed with her legs in a horizontal position because with her knees raised the pelvic outlet is contracted and labor is impeded.

Failure of engagement may also be due to a faulty position. It is known that right occiput positions are much more frequent than it is assumed and they usually are posterior positions. A correction of this position may also help engagement.

In a multipara with the cervix fully dilated, membranes unruptured and head not engaged, the membranes should be ruptured and this helps engagement in a good many cases.

If the pelvis is not contracted or only slightly so and after a reasonable amount of time, interference is necessary, especially so if the condition of the mother and child begin to cause anxiety to the physician in charge. In such cases version is the most useful procedure to be adopted. Forceps on the floating head are brutal and are fraught with more danger than a version. On the other hand, I have not seen a ruptured uterus following a version.

The type of podalic version used is a modified Potter type.

The patient, having been completely anaesthetized, is placed in the lithotomy position. The bladder is catheterized, followed by injection of one dram 5 per cent argyrol. Anointed with tincture of green soap the hand of the operator irons out the perineum. The cervix is next attended to; if not completely dilated, it is slowly dilated by the Harris method until the fist can pass through it. Depending upon whether you have a right or a left position the right or the left hand of the operator is inserted into the uterus. If the membranes are still intact the hand of the operator is carried up between the membranes and the uterine walls until the feet of the fetus can be palpated through the membranes. At this point the membranes are ruptured. The feet of the fetus can be differentiated from the hands by the presence of heels on the former.

In passing up the uterus the operator must be careful of the presence of the Bandl's contraction ring. This must be carefully stretched until it is sure that it will not be an impedi-

ment to delivery, for it is at this point that rupture occurs when it does occur.

Having reached the feet of the fetus, the membranes are ruptured at this point. If possible both feet should be grabbed and slowly pulled down. If only one foot is found, it should be brought down into the vagina and steadied with the other hand; after this the other foot is searched for and found and brought down to the position of the former. With both feet in the grasp of the operator's hand gentle tension is made on them until they reach the vulva. At this time version is complete. Both feet are now grabbed with both hands and traction is made downwards. In pulling down on the feet they should be held with the toes pointing anteriorly, as if intending for the child to be extracted with its back posteriorly. When the knees of the fetus have reached the perineum further traction is suspended for five or ten minutes. The purpose of this respite in pulling on the child is this:—when the knees have reached the vulva the buttocks of the child is in the hollow of the mother's sacrum. By leaving the fetus alone at this stage we allow the arms of the child to drop down to their normal position, to that of flexion upon the chest of the fetus instead of becoming extended over the head as sometimes happens.

The fetus is now with its back posteriorly. By pulling down on the legs of the child and at the same time pulling one leg over the other in a counter-clock wise manner the fetus is rotated until its back is anterior. Traction downward is maintained until the axillae are reached. With index finger in the axilla of the anterior shoulder pushing the scapula outwards the anterior shoulder is delivered. Care must be taken not to push the finger too far up into the axilla as in this way injury to the brachial plexus may occur. Likewise, too much tension must not be put on the arm as the humerus may be broken. In delivering the arm the index finger should pull down through the bend of the elbow. After delivery of the anterior shoulder, the right hand is put on the back of the fetus, the neck of the child resting between the index and middle fingers of the operator's hand and the thumb on the side of the child. In this way the body of the child is rotated clockwise, the posterior shoulder made anterior and then delivered as before.

Occasionally it happens that the arms of the child become extended and are caught between the occiput of the fetus and pubis. This is what is known as nuchal hitch and may be right or left. To disengage the right or left arm we aim to bring the arm in such a position that instead of being caught between the pubis and the occiput we rotate the body of the baby so that the arm will find itself between the pubis and the face of the child. For instance, if the right arm of the child is caught and cannot be delivered, the body of the child is rotated to the mother's right side. In this way the face of the fetus will be brought more anteriorly and the arm delivered. Having delivered both shoulders, the vertex of the fetus will be found just above the symphysis pubis. The operator makes gradual downward traction. An assistant may push down above the symphysis pubis upon the foetal head in order to promote flexion of the head upon the body. Traction is still made downwards until the head rests on the perineum.

Now the Maricean manoeuvre is employed. The legs of the child are made to straddle the operator's arm and chest of the fetus rests on the palm of his hand. The index finger of the operator's hand is inserted into the child's mouth, making it touch the roof but not the floor of the mouth.

The arm of the operator is now raised so that the child's body is perpendicular to the abdomen of the mother. The fingers of the other hand of the operator, by gentle stroking of the child's neck downwards forces any secretion from the throat of the child. Usually the child will take one or two breaths before the head is out. The fetal head is gradually eased out of the perineum, sufficient time being taken to stretch the perineum to prevent, if possible, a perineal tear. A word of caution in elevating the body of the fetus towards the abdomen of the mother,—one must make sure that the head is absolutely on the perineum, otherwise the body of the child will be bent backward and if the head is not yet out of the bony pelvis its neck may be broken. Dr. Potter believes that more than the traditional eight minutes may elapse from the time of the birth of the umbilicus to the delivery of the head without endangering the life of the child. After the baby is born the placenta is delivered in the usual manner.

In a primipara, failure of engagement at

the onset of labor denotes some abnormality. The size of the pelvis should be studied again and the position and presentation of the fetus determined. If there is any question at all about the capacity of the maternal pelvis, Caesarean section is much safer for the mother and child provided the early part of the labor has been managed correctly and such a patient has been treated as a potential Caesarean. Due to this attitude of the hospital staff to the possibility of section, there was not a single case of the Porro-Caesarean section, that is with hysterectomy, in the Lying-In Hospital during my term there, although Caesarean sections were performed there every day.

In ordinary clean cases the classical Caesarean section is performed. I will not go into a discussion of the technique of the operation; this is fully discussed in text-books, except that Dr. Davis, the chief surgeon, makes his abdominal incision above and down to the umbilicus, and incises the uterus nearer the fundus than the text-books tell us. His contention is that after delivery, when the uterus contracts there is then no danger of the scar of the uterus adhering to the scar of the abdomen. However, even if this be of considerable importance, it is obviated by some operators at that hospital by covering the uterine scar with buried Lembert sutures. The classical Caesarean section is carried out just as described in text-books, except that the placenta is removed manually in every case.

If the patient has been examined on the outside a little more than they would like, then the low double flap Caesarean section is used. This differs somewhat from the classical Caesarean. After opening the abdomen through a low mid-line incision, the peritoneum is incised on the lower portion of the uterus just above its reflection on the bladder all the way across—from one broad ligament to the other—with blunt dissection. It is separated off from the body of the uterus for about 10 c.m., high enough to make longitudinal incision into the uterine musculature—long enough to deliver the child. The sewing of the muscle is done as before. When this is finished, the upper flap of the peritoneum is brought down over the uterine wound and tacked down with several interrupted sutures. After this, the lower fold of the peritoneum is brought up over the upper one and tacked over it with several interrupted sutures. When

this is done, the uterine scar is entirely hidden and covered by peritoneum, and the peritoneal folds are not contaminated as they are separated off before the uterine musculature is incised. This operation is a little more difficult than the ordinary Caesarean, but is compensated for by the greater safety of the patient as far as infection is concerned.

In frankly infected cases, the extraperitoneal Caesarean section is done. When the patient is ready for operation, a catheter is passed into the bladder and the bladder filled with saline. The catheter is clamped. A low abdominal incision is made to the left of the mid-line down to but not through the peritoneum. The distended bladder is found and the space between it and the uterus is made out by blunt dissection. The peritoneal reflection from the bladder onto the uterus is freed enough to make a long enough incision; the clamp on the catheter is removed, the saline is allowed to run out and the bladder collapses and is retracted to the side with a retractor. The uterus is incised and the child is delivered and the rent in the uterus closed in the usual manner. The necessity for the extra-peritoneal type of Caesarean section is rare in the Lying-In Hospital.

When the uterus has been closed, it is squeezed in order to force out all clots through the cervix, as the presence of clots in the interior of the uterus will prevent its efficient contractions and will predispose to bleeding. Pituitrin is not used, either into the uterus or subcutaneously, as there is no occasion for it and post-operative uterine bleeding is rare. The abdominal wound is closed and a tight abdominal binder is applied. The post-operative convalescence is usually normal and the treatment does not differ from any other non-complicated laparotomy.

With the head engaged, a different situation presents itself. Dystocia here may be due to a contracted outlet, malposition, or to inefficient pains. A frequent cause of lack of descent of the engaged head is an edematous anterior lip of the cervix. It should be noted that synclitism or the passage of the bony head against the bones of the pelvis is much more extensive posteriorly than anteriorly. The head sliding down along the sacrum has about $2\frac{1}{2}$ times the distance to travel than that part of the head in contact with the pubis. Here the comparative lack of movement of the head over

the pubis favors the accumulation of fluid in the anterior lip of the cervix. This may become so thick as to prevent the passage of the head downwards. In such cases the anterior lip of the cervix should be pushed back over the head. I personally have had a case on the outdoor service where the anterior lip of the cervix was so thick that it could not be pushed over the head. With the orange stick that we use to clean our fingers nails, after sterilization, I made several punctures in the anterior lip of the cervix. The edema then subsided enough to allow the head to travel downward.

After the head is engaged and no progress is made for two hours, something has to be done, as the pressure on the fetal head may prove dangerous to the safety of the child, and also there is too much chance for infection. Usually forceps are applied. In posterior positions the double Scanzoni application is usually done but only after one has tried to rotate the head manually to an anterior position and failed.

A not uncommon source of worry to the obstetrician is post-partum hemorrhage. Especially in the operative cases it is likely to occur. Of course the placenta and membranes should be thoroughly inspected and, if a piece is left in, one should go after it. The torn cervix should be repaired. If neither of these accounts for the hemorrhage and the uterus fails to contract satisfactorily, a c.c. of pituitrin should be administered and the uterus kneaded continuously until the hemorrhage stops. If this is unsuccessful, preparations are made to pack the uterus and this should not be delayed too long, for too long a delay may prove fatal to the patient.

One hand is introduced into the uterus, while the other hand grabs the fundus through the abdominal wall. An assistant holds a tube of iodoform gauze. One hand grabs the end of the packing and carries it into the uterus and packs it. The packing is done very tightly. Loose packing is worse than no packing at all. There is no danger of rupturing the uterus, as pressure is then made against the uterine wall supported by the hand on the abdomen. Many yards of gauze are usually required to fill the uterus. When one tube of gauze is exhausted, the end is tied to another strip of packing and the packing continued. This usually stops the uterine hemorrhage. Twenty-

four hours later, after the administration of a c.c. of pituitrin, some of the gauze is removed and, if no bleeding follows, all the packing may be removed. But one must always be ready to re-pack the uterus after removing the packing should bleeding recur.

ASPHYXIA NEONATORUM.

Usually after anaesthetizing the mother for some time the baby does not begin to breathe right at once. The steps followed at the Lying-In Hospital to bring about breathing in the newborn infant are as follows:

As soon as the cord is cut the baby is grabbed by its feet with its head down. The thumb rubs down its neck in order to express out the mucus from its throat. If much mucus is seen to come from its mouth and nostrils the mouth and nose are cleaned with a piece of gauze. The baby is held with its head down for from 10 to 15 minutes while friction is made by rubbing its front and back with a piece of gauze. Once in a while it is slapped on its buttocks. If this fails to bring about respiration, a little ether may be poured on its body while the operator blows on the ether. The purpose of this is to bring about more rapid evaporation and increase the cooling effect. If respiration is still in abeyance, two pans of cold and warm water should be ready and the child immersed alternately in the cold and warm water. In changing from cold to warm water, it must be kept very little time in the cold and about three times as long in the warm water. The purpose is only to get the effect of the sudden change in external temperature but to keep it mostly in the warm water to preserve its body temperature.

While immersed in the warm water with its head above the water level, alternate compression and relaxation of the chest wall should be done by the obstetrician. If, after, a reasonable length of time, the child still fails to breathe, it should be laid on the table, a catheter inserted into its trachea, and an attempt made to suck any secretion that may be present in the lungs. After this a piece of gauze should be laid over its mouth and nose, and one should force in breaths of air into the baby's lungs about 18 per minute. This should be kept up until either the baby begins to breathe normally or the heart ceases to beat. The child should not be given up for dead

until at least one-half hour has been spent on it.

Alpha-lobelin, recently advocated as respiratory stimulant in asphyxiated children, has been tried in the Lying-In Hospital, but no startling results were obtained from it.

Clinical Reports

A MATERNITY CASE WITH UNUSUAL FEATURES.*

By E. PENDLETON TOMPKINS, M. D., Lexington, Va.

On September 9th, 1927, I attended Mrs. C—, 22 years old, white, primipara, the wife of a farm laborer. The young couple live with her parents, in a small log cabin, some six miles from my office, which is reached by a very rough road leading across a deep ford in a large creek.

The progress of the case was uneventful up to a certain point, except that it was unusually slow, in spite of two half c.c. doses of pituitrin. I had diagnosed twin pregnancy by external palpation. The first child, a girl, was born at 2:50 P. M. After attending the child's eyes and dressing the cord I took a seat on the porch to smoke. From time to time I returned to the bedside; the patient resting in apparent comfort, and dozing a little. An hour or more had passed, I had just left the bedside, the patient answering questions I put to her, and seeming entirely normal, with no further contractions of the uterus as yet; suddenly came a wild outcry from her mother and her husband sitting in the room with her. I rushed in to find the patient in horrible convulsions. The young husband, shrieking "she is dying, she is dying", fled from the room and from the house, and I saw him no more for hours. The mother was almost as bad, she refused to come back into the room, or to help me, but with her apron over her face sobbed and lamented. The only help at hand was an old lady, a neighbor who had come in. I poured ether on the cone, and handed it to her, and quickly loaded a hypodermic syringe with morphine, and injected it in the arm. I asked the old lady if she had ever assisted in a forceps delivery. She said she had never been present at one, but she was willing, and would do her best. The family had let the fire go out, and I hastened to the kitchen, where I had

to rekindle the fire, and put instruments on to boil, after which I made other necessary preparations, as to solutions, etc. In the meantime the heavy rains had swollen the creek so it was impassable, and help could not come even had there been time to send to the nearest phone, a mile or more away. I anesthetized the patient rather deeply, placed her across the bed, with sheet rolled corner-wise to serve as leg-holder, and with the old lady lending a hand as she could, I delivered the second twin, also a girl, as rapidly as possible. This child was born at 5:50 P. M. It was quite blue and showed no effort at respiration, so I had to occupy myself with the usual methods of resuscitation. In ten minutes or so the baby was crying fairly well, I had just wrapped it up and laid it aside, and when I turned to the mother I was confronted by the most copious hemorrhage I ever had to deal with. It seemed to me that a gallon of blood was lost, though I presume the amount was probably not half that amount. I compressed the uterus and held it firmly until separation of the placenta was completed, kneading the womb to hasten the process. The placenta was single but very large, with of course two cords. Then I found a rather extensive laceration, requiring a number of catgut sutures. This having been done, and the patient cleaned up, she was quite ready to rest, and I assure you I was also glad to rest. For more than two hours I had bent over that low bed, in a room whose width barely accommodated the length of the bed, with only the light from a tiny window, with no table but the end of the sewing machine to place anything upon, my pans of solutions in chairs, and my instrument roll on the floor, and worst of all with myriads of flies swarming everywhere, so that towels must be spread over all I used.

However, in spite of all obstacles the patient has made a good recovery. Of course the profuse bleeding was beneficial to the eclampsia, but she was left in a condition of relative exsanguination, not conducive to nourishing even one baby, not to mention two.

I was convinced by this experience that it is possible, when one is confronted with dire necessity, to get along after some fashion with very little help, and can save not only the mother, not only even the mother and one baby, but the mother and both babies.

POST SCRIPTUM. The mother and babies were

*Read at the October, 1927, meeting of the Rockbridge County Medical Society.

visited five weeks later, and found to be doing well; the babies are growing at very satisfactory rate, without artificial feeding, and the mother's color is nearly normal.

OBSTRUCTIVE ATELECTASIS—CASE REPORT.

By E. G. GILL, M. D., Roanoke, Va.

Gill Memorial Eye Ear and Throat Hospital, Department of Bronchoscopy.

Patient, age thirteen months, was referred to us June 4, 1927, by Dr. F. L. Banks. The parents gave the following history:

Two days previous to admission, child aspirated a pinto bean. This was immediately accompanied by severe coughing and strangling. The child has had similar coughing spells at intervals since aspirating the bean. The child becomes very blue during the attacks of coughing and strangling.

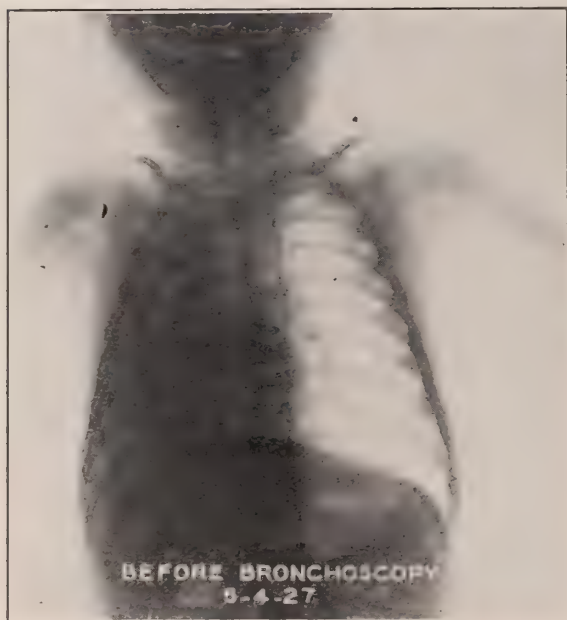


Fig. 1.—Non-radiopaque foreign body, pinto bean in right main bronchus, causing complete obstruction with atelectasis and drowned lung. Present two days. Note (a) displacement of heart and mediastinum to right or invaded side. (b) depression of left diaphragm. (c) transparency of un-invaded side.

Temperature on admission was 105 F, respiration 100, pulse 160. Physical examination showed complete dullness and absence of breath sounds over entire right chest. On inspection a compensatory emphysema of the left side was easily observed.

Examination of the nose and throat was negative. Blood count—W. B. C. 13,000; haemoglobin 65 per cent; polys. 50 per cent;

lymphocytes, large 2 per cent; small, 47 per cent.

X-ray examination of the chest showed cloudiness of the entire right lung. The heart shadow was obscured, as the heart and mediastinal structures were displaced to the right side. This presented a typical picture of obstructive atelectasis.

The child's condition was critical, and we realized that something had to be done immediately. The child was taken to the operating room an hour after admission and the bronchoscope was introduced. The trachea and bronchus were filled with purulent secretions. After the secretions were removed by suction, the bean was seen in the right main bronchus. It was impacted and there was considerable swelling of the mucous membranes around the bean. A portion of the bean was removed, but due to the child's critical condition, we did not feel that it was advisable to prolong the operation. The secretions were profuse and the child was so exhausted we felt that a tracheotomy should be done so that the secretions

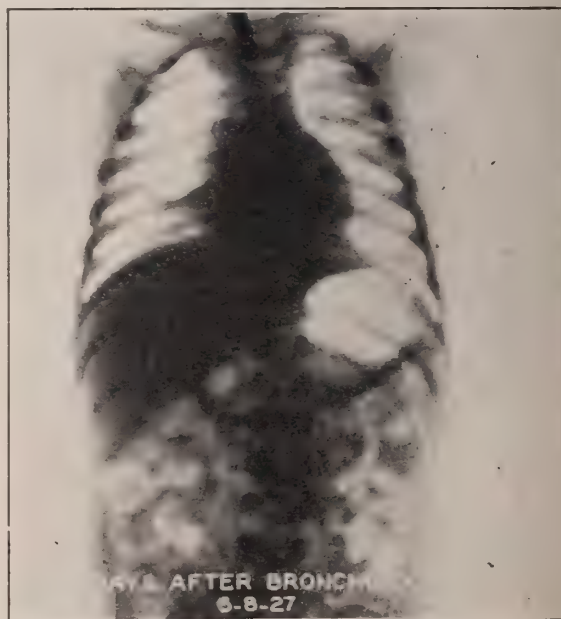


Fig. 2.—Radiograph four days following bronchoscopic removal of one-half of the bean. The right main bronchus was uncorked, thereby restoring ventilation and drainage. Note (a) normal position of heart, mediastinum and diaphragm normal. (b) Transparency of right and left lungs.

could be aspirated through the tracheotomy tube. The operation was done while the bronchoscope was in the bronchus. The child was taken back to the room and the secretions were aspirated through the tracheotomy tube,

approximately every fifteen minutes, day and night, for four days. During this time the temperature ranged around 104, respirations 50 to 75.

X-ray picture number two showed the change that had taken place in the right lung since the first bronchoscopy was performed. This picture was taken four days after admission. Our second bronchoscopy was done on the seventh day, when we removed the remaining portion of the bean. At this operation we had Dr. F. D. Woodward in consultation.

The child improved gradually from this time and was discharged from the hospital on June 25, and has since remained well.

COMMENT.

This case is one of an organic foreign body, and it very clearly demonstrates the extreme toxicity of this type of foreign bodies in the lungs of children. We feel that this child's life was saved by two measures which we fol-



Fig. 3.—Radiograph ten days after first bronchoscopy. Condition same as in Fig. 2.

lowed,—first, in not prolonging the first bronchoscopy more than ten minutes; second, in performing a tracheotomy. Had we been successful at the first bronchoscopy in removing the entire bean, a tracheotomy would still have been indicated as the child, in its weakened condition, would not have been able to expel the profuse amount of secretions.

This child was kept alive for days by

constantly aspirating the secretions through the tracheotomy tube. This was done by the use of a very small rubber catheter, introduced through the cannula, and suction applied. The secretions were thick and tenacious at times. In order to loosen the secretions, normal saline solution (ten to fifteen drops) was introduced into the trachea and bronchus through the tube every three hours.

711 South Jefferson Street.

President's Page

Post-Graduate Medicine—A Need of the Profession.

In the beginning of a New Year it is customary for business corporations to take an inventory and make a report to its stockholders.

A similar procedure upon the part of the Medical Society of Virginia, likewise a corporation, may not be inappropriate, more particularly since the adoption of the new constitution and by-laws has copied modern business methods to the extent that its councilors now function as a board of directors, its committees having been made appointive, and responsibility centralized.

In reckoning assets, those most to be desired in business are material and tangible. On the contrary, those of most value in a scientific organization are intangible and consist of a wide awake progressive membership of high morale.

In a consideration of the activities of the Society during the past year, it is a source of gratification to note the increasing interest manifested throughout the State in the work of the various local organizations and its high order of such work. Likewise, a review of the records of the work of committees as noted in the minutes of the October meeting shows that a number of important matters have been undertaken, and real progress made.

Looking to the additional lines of endeavor that promise most for the New Year, one naturally inquires as to the greatest need.

Is it not the consensus of opinion that the one greatest need of the profession in this State at the present moment is the devising and putting into practical operation a system of post-graduate work, and of review, suitable to the needs and wishes of the general practitioners, the family physicians, to whom the

post-graduate centers are not easily accessible and whose needs for the most part are not met by the present system of instruction?

Organized as at present, with its component units touching all parts of the State, what are the opportunities and obligations of the State Society as relates directly to these, the largest group of practitioners, in the State?

Within the past one and a half decades, a period far shorter than the average man in the State has been in practice, advances have taken place so rapidly that only those most favorably situated could possibly keep themselves well informed. I refer to the lessened incidence of the class of infections which have well nigh disappeared as knowledge of good sanitation and hygiene have spread; the change wrought by a growing knowledge of the relation of focal infections to morbidity, and to advancing knowledge as relates to the endocrines, to sera and vaccines; and finally the greater incidence of diseases of nutrition and of the circulation. A revolution over night.

During the time here mentioned, practically all of the specialties have arranged for clinics and didactic instruction of one sort or another, while upon the contrary, until the recent undertaking of post-graduate work at the University, the general practitioners of the State have been dependent solely upon what could be gleaned from the journals and the papers read before their local, and the State Society.

Much has been said of the drift to the specialties, the disappearing family physician, and the general unrest and discontent of recent graduates in medicine. However this may be, it is inevitable that the vast majority of the sick will continue to be treated either at home or in community hospitals by the family physician, and that they will profit or lose in accordance with the facilities afforded him to keep well informed, and that sooner or later, with proper opportunity, he must again come into his own.

As is well known, various methods of post-graduate work have been tried in different states; some have succeeded, others have failed. Just what suits one community may not suit another.

What is the best solution of the need in Virginia? Is the reason why the general practitioner has not been more interested, chiefly that he cannot leave his patients to

visit medical centers, or is it as above indicated that he cannot find short courses that fit his needs? Would he attend a series of didactic lectures and clinics if given by trained teachers at suitable hours in some designated locality within his reach?

What then are the possibilities of determining the real needs and the probable success of a statewide movement along the lines indicated and the better means of accomplishment?

In corresponding with Dr. Flippin, of the University, which institution, as above noted, has already undertaken in a successful way some post-graduate work, and with Dr. Sanger, of the Medical College of Virginia, it has been ascertained that both institutions have for some time been interested, and both Dr. Flippin and Dr. Sanger express not only a willingness to cooperate, but a desire to be of service both in working out a suitable plan and in aiding to put it into execution.

Upon the whole it would seem that the line of better promise is first to ascertain as nearly as possible whether the majority of physicians of the State would enter into a properly devised plan with enthusiasm and give it the necessary support; then, if so, that it be determined whether the work shall be done chiefly at the colleges, or by lectures and clinics sponsored by the local organizations throughout the State as a college extension, or otherwise.

While the various phases of a tentative plan, looking to the advisability of some such undertaking as here outlined, will be considered by the Council at its January meeting, it would seem proper to ascertain by various means the wishes of the majority of the members of the Society; therefore, may I not suggest that the columns of the *Journal* be made an open forum, and discussions and suggestions invited?

J. W. PRESTON.

Bibliotheca Obstetrica

Edmund Chapman.

Chapman (Edmund) [1680-1756]. A treatise on the improvement of midwifery, chiefly with regard to the operation. To which are added fifty-seven cases, selected from upwards of twenty-seven years' practice. 2. ed. lv, 186 pp. 8°. London, J. Brindley, 1735.

— A reply to Mr. Dougless's short account of the state of midwifery in London and Westminster, wherein his trifling and malicious cavils are answered, his interestedness and disingenuity impartially represented, and the practise of physick, but particularly the character of the late Dr. Chamberlen, vindicated from his indecent and unjust aspersions. 68 pp. 12°. London, T. Cooper, 1737.

To Chapman belongs the credit of publishing one of the first systematic treatises on obstetrics in English and the first account of the obstetrical forceps. In his first edition, which was published in 1733, he describes the instrument that "has long been known" by which one can deliver babies by the head without detriment to the mother or child. He was criticized for not giving an illustration of the instrument. In his second edition he made good this defect.

Chapman is also credited with improvement of the lock of the forceps. Great stress was laid on accurately articulating the two blades so that a pin could be fitted into them. Chapman lost the pin to his forceps and found that they worked equally well if not better without the pin. This is said to be the beginning of the loosely fitting "English lock".

There is very little written about Chapman. He is generally spoken of as a country practitioner. When he moved to London in 1733 he lived in Red Lion Square and must have been a neeighbor of Dr. James Douglas. Dr. James Douglas was a distinguished obstetrician and anatomist, the discoverer of the pouch of periotoneum that bears his name, and a brother of John Douglas with whom Chapman had a controversy. There was another Douglas, William, who was the author of several bitter open letters against William Smellie. It would seem that 18th century obstetricians spent a large part of their time writing open letters and calling each other names. The titles of the letters are very comprehensive and they sometimes enable one to classify friends and foes. Thus the title of John Douglas's letter its: "A short account of the state of midwifery in London, Westminster, etc., wherein an effectual method is proposed to enable midwomen to perform their office in all cases (excepting those few where instruments are necessary) with as much ease, speed, and safety as the most dextrous midmen; whereby women and children's falling victims to the

ignorance of midwomen, so loudly complained of by Chamberlen, Giffard, and Chapman, may for the future be prevented, etc. 21., 75 pp. sm.



Illustration of obstetrical forceps from the 2nd edition of Chapman.

8°. London, author, 1736." From this and Chapman's 68 page reply thereto, it would appear that Chapman and the Chamberlens were friends.

M. P. R.

Proceedings of Societies

Rockbridge County Medical Society.

This Society at its meeting in the Chemistry Building of Washington and Lee University, December 12th, gave a vote of thanks to Dr. R. P. Cooke and the local Health Unit for their efficient and effective services during the

year. The present officers were re-elected, as follows: Dr. E. P. Tompkins, president; Drs. C. H. Davidson and Jos. Seebert, vice-presidents; and Dr. H. L. Mitchell, secretary-treasurer. All are of Lexington.

Mr. Charles Stevens, of Parke, Davis and Company, showed that company's moving picture of "How Biological Products are Made". There was an attendance of about seventy-five, including Washington and Lee students and professors and V. M. I. cadets, in addition to members of the Society.

The Accomack Medical Society

Held its annual banquet at the Drummond-town Tavern, December the 14th, at which time Dr. Geo. L. Fosque, of Onancock, vice-president, presided in absence of the president, Dr. C. E. Critcher, of New Church. Dr. J. McFadden Dick, of Salisbury, Md., was the principal speaker, though talks were also made by Dr. J. W. Bowdoin, Dr. W. M. Burwell, Dr. Rooker J. White, Dr. John W. Robertson, Dr. Fred Wampler, Dr. Joseph Hiden and Dr. R. R. Nevitte. The doctor's wives attended this meeting with their husbands and Mrs. Hiden and Mrs. Rooker White gave talks from the standpoint of the doctor's wife, while Mrs. W. L. Cosby, of Painter, added much to the pleasure of the occasion with violin solos. There were about thirty people at the banquet table.

The Pittsylvania County and Danville Medical Society

Held its regular quarterly meeting in Danville, December the 13th, under the presidency of Dr. Charles A. Easley, of Chatham. There was a good attendance and Mr. Charles Stevens, of Parke, Davis & Company, showed a moving picture film on "How Biological Products are Made". The film was instructive and Mr. Stevens' talk much enjoyed.

In the election of officers, Dr. L. E. Fuller, of Witt, was made president; Dr. H. J. Langston, Danville, vice-president; and Dr. J. A. Hawkins, Danville, was re-elected secretary-treasurer. The following were elected members of the Board of Censors: Dr. W. W. Robertson, Danville, for three years; Dr. P. W. Miles, Danville, for two years; and Dr. J. C. Anderson, Chatham, for one year. It was decided to hold the next meeting in Danville, March the 13th.

The Warren, Rappahannock and Page Medical Society

Held its regular meeting in Front Royal,

November 9th, at which time several interesting and instructive papers were read. Dr. Hunter McGuire, Winchester, and Drs. J. Edwin Wood and Dudley C. Smith, University, were the invited guests.

Dr. Virgil Hammer, Luray, was elected President; Dr. Reginald Munson, Linden, Vice-President; and Dr. George H. Long, Luray, Secretary-Treasurer. Dr. E. L. Grubbs and Dr. D. M. Kipps, both of Front Royal, are the retiring president and secretary, respectively. It was decided to hold the next meeting in Luray on the second Tuesday in April, 1928.

The Richmond Academy of Medicine,

At its annual meeting in December, elected the following as officers for 1928: President, Dr. James H. Smith; Vice-Presidents, Drs. M. L. Anderson and Paul W. Howle, all of Richmond. The Secretary-Treasurer has to be elected by the Board of Trustees. It is interesting to note that the present incumbent, Dr. Mark W. Peyser, has been secretary since 1894 and has been secretary-treasurer since these offices were combined several years ago.

The Southside Virginia Medical Association

Met in Petersburg, December the 13th, under the presidency of Dr. Wright Clarkson, of that city. There was an attendance of fifty-six members and visiting doctors. "Eclampsia" was the subject for general discussion and this and all other papers on the program were freely discussed.

The following officers were elected for the ensuing year: President, Dr. W. D. Prince, Stony Creek; Vice-Presidents, Dr. R. H. Manson, McKenney; Dr. J. L. Hamner, Mannboro; Dr. W. C. Webb, Disputanta, and Dr. J. A. Grizzard, Drewryville; Secretary-Treasurer, Dr. R. L. Raiford, Franklin, re-elected.

The next meeting will be held in Suffolk on the second Tuesday in March.

New Society Organized at University of Virginia.

A new medical society, "THE MEDICAL SOCIETY OF THE UNIVERSITY OF VIRGINIA", has just been organized by the members of the medical teaching staff and hospital of the University of Virginia. The new society is an outgrowth of the medical journal club which has been running successfully for about twenty years, and of clinical-pathological conferences now in their seventh year.

It is planned to hold meetings of the new

society every fortnight from October to May, for the presentation of papers, discussions of clinical cases, and reports on laboratory studies.

Invitation is hereby extended to members of the medical profession to visit these meetings, especially to the members of the Medical Society of Virginia, and of the Piedmont and Albemarle Medical Societies. It is hoped to have members of the state societies take part in the meetings from time to time.

Dr. William E. Bray is President; Dr. J. Staige Blackford, Secretary; Dr. Harry T. Marshall, Editor.

The first meeting was planned for Monday, January 9, 1928; the second on January 23, at 7:30 P. M., in the University of Virginia Hospital. The general schedule calls for meetings every other Monday for the rest of the winter.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

A. M. A. Officers Cooperate with Auxiliary.

At the American Medical Association meeting in Washington, last May, the House of Delegates authorized the Trustees to appoint a Liaison Committee to guide the Auxiliary in its policies. This appointment was not made until the meeting of the Board of Trustees in September. The Auxiliary has been greatly honored in having the Executive Board of the Board of Trustees appointed to direct its work. It is composed of the following gentlemen:

Dr. Edward Heckel, Ex-Officio Chairman, Pittsburgh, Pa.

Dr. A. R. Mitchell, Lincoln, Neb.

Dr. J. H. J. Upham, Columbus, Ohio.

Dr. J. H. Walsh, Chicago, Ill.

Dr. Olin West, Secretary and General Manager, Chicago, Ill.

Dr. Morris Fishbein, Editor, Chicago, Ill.

These men have given their approval and offered excellent suggestions, outlining plans

for the Auxiliaries' work during the year. Some of these are:

To organize for the purpose of responding to any call from the medical profession and to do all the work assigned to it from time to time.

To promote closer social contact between the families of physicians.

To assist in lightening the burdens of humanity.

To help preserve the health of the people.

To outline Health Programs approved by the Liaison Committee to be presented before other organizations.

To recommend to all clubs that they place capable physicians' wives in charge of Club Health Departments, in order to secure authoritative programs.

To secure, if possible, moving pictures to illustrate the importance of the annual physical examinations by the family physician. Each member of every household, servants included, should be examined.

To assist in providing Health Talks over the radio by prominent physicians and health officers. These speakers should be appointed by the County Medical Society.

To continue our efforts to place *Hygeia* in every home, as it is the leading health magazine of the United States and is published by the American Medical Association.

To appeal especially to physicians to aid in the *Hygeia* campaign, as the commissions received enable the Auxiliaries to extend their activities.

To recommend to Auxiliaries that they give benefit entertainments to create a fund for *Hygeia*, which will be used as gifts of subscriptions to schools, legislators, churches and libraries.

The Members of the Woman's Auxiliaries to the American Medical Association are those who have paid their annual dues to the National organization through their County and State Auxiliary.

Where there is a County Medical Society there should be an Auxiliary. It has been uniformly noted that there is more interest and enthusiasm, and a greater spirit of comradeship among the members of the County Medical Society if there is an active Auxiliary working in the community.

It is the earnest endeavor of the Auxiliary

to bring its work to the attention of all who are interested in the welfare of our people.

Every physician's wife should feel it a privilege as well as her duty to promote dependable health education, not leaving it in the hands of those who are interested in spreading the propaganda of various cults.

She can aid materially in the Auxiliary's effort to impress upon all club members a proper conception of the real mission of Organized Medicine, especially in its crusade of Preventive Medicine.

The Woman's Auxiliary to the Norfolk County Medical Society

Held its first meeting with new officers on Monday night, December the 5th, while the Norfolk County Medical Society was in session. Following the roll call and reports of committees, Dr. Warren White gave a talk on "The Advantages of the Woman's Auxiliary to the Medical Profession". This was followed by a talk by Dr. Southgate Leigh on "How the Woman's Auxiliary May Help to Educate the Public". There were about fifty ladies present and the meeting was so enthusiastic that it was decided that the best time for meetings was while the doctors were having their sessions.

Officers of the Norfolk County Auxiliary are: President, Mrs. M. N. King; vice-presidents, Mrs. N. F. Rodman, Mrs. James D. Collins and Mrs. W. P. McDowell; recording secretary, Mrs. W. A. Porter; corresponding secretary, Mrs. R. U. Burgess; treasurer, Mrs. Lomax Gwathmey. The following chairmen were named for the year: Public Health, Mrs. Southgate Leigh; Hygeia, Mrs. Lewis Berlin; Entertainment, Mrs. N. F. Rodman; Publicity and Editor, Mrs. W. P. McDowell; Membership, Mrs. J. D. Collins and Mrs. Charles W. Doughtie; Visitation of Sick Members, Mrs. Starke Sutton; Music, Mrs. R. H. Peake; and Motor Corps, Mrs. C. J. Andrews.

Other Auxiliaries are urged to send reports of their meetings for publication.

"For life is the mirror of king and slave;
'Tis just what we are and do;
Then give to the world the best you have,
And the best will come back to you."

—Madeline S. Bridges.

The Truth About Medicine

In addition to the articles enumerated in our letter of October 29th, the following have been accepted:

Abbott Laboratories

Staphylococcus Mixed Bacterin
Typhoid Prophylactic, 5 c.c. vials
Typhoid Prophylactic, 20 c.c. vials

Cutter Laboratory

Pollen Extracts—Cutter, 5 c.c. vial
Alkali Weed Pollen Extract Concentrated—Cutter;
Allscale Pollen Extract Concentrated—Cutter;
Annual Saltbrush Pollen Extract Concentrated—Cutter; Arizona Ash Pollen Extract Concentrated—Cutter; Bermuda Grass Pollen Extract Concentrated—Cutter; Black Walnut Pollen Extract Concentrated—Cutter; Box Elder Pollen Extract Concentrated—Cutter; Burning Bush Pollen Extract Concentrated—Cutter; Canary Grass Pollen Extract Concentrated—Cutter; Careless Weed Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Cocklebur Pollen Extract Concentrated—Cutter; Common Ragweed Pollen Extract Concentrated—Cutter; Corn Pollen Extract Concentrated—Cutter; Cottonwood Pollen Extract Concentrated—Cutter; False Ragweed Pollen Extract Concentrated—Cutter; Foxtail Grass Pollen Extract Concentrated—Cutter; Giant Ragweed Pollen Extract Concentrated—Cutter; Johnson Grass Pollen Extract Concentrated—Cutter; June Grass Pollen Extract Concentrated—Cutter; Lamb's Quarters Pollen Extract Concentrated—Cutter; Marsh Elder Pollen Extract Concentrated—Cutter; Mountain Cedar Pollen Extract Concentrated—Cutter; Mugwort Pollen Extract Concentrated—Cutter; Oak Pollen Extract Concentrated—Cutter; Olive Pollen Extract Concentrated—Cutter; Orchard Grass Pollen Extract Concentrated—Cutter; Plaintain Pollen Extract Concentrated—Cutter; Red Root Pigweed Pollen Extract Concentrated—Cutter; Red Top Pollen Extract Concentrated—Cutter; Russian Thistle Pollen Extract Concentrated—Cutter; Rye Grass Pollen Extract Concentrated—Cutter; Sagebrush Pollen Extract Concentrated—Cutter; Shad Scale Pollen Extract Concentrated—Cutter; Timothy Pollen Extract Concentrated—Cutter; Tumbleweed Pollen Extract Concentrated—Cutter; Velvet Grass Pollen Extract Concentrated—Cutter; Western Ragweed Pollen Extract Concentrated—Cutter; Western Waterhemp Pollen Extract Concentrated—Cutter; Wild Oat Pollen Extract Concentrated—Cutter; Yellow Dock Pollen Extract Concentrated—Cutter.

Lederle Antitoxin Laboratories

Anaerobic Antitoxin (Polyvalent)—Lederle

Merck & Co., Inc.

Erythrol Tetranitrate Tablets—Merck, $\frac{1}{4}$ grain.

H. K. Mulford Co.

Ampuls Dextrose (d-Glucose) 10 Gm., 20 c.c.
Ampuls Dextrose (d-Glucose) 25 Gm., 50 c.c.

Parke, Davis & Co.

Ephedrine Sulphate—P. D. & Co.
Prophylacto Mfg. Co.
Ephedrine Hydrochloride—Pemco.

E. R. Squibb & Sons

Insulin Squibb, 100 units, 10 c.c.

Tailby-Nason Co.

Nason's Palatable Cod Liver Oil.

NEW AND NON-OFFICIAL REMEDIES

Scarlet Fever Streptococcus Toxin—Squibb. This product (New and Non-official Remedies, 1927, p. 375), is now marketed in packages of five vials of toxin containing, respectively, 500, 2,000, 8,000, 25,000 and 60,000 skin test doses; in packages of fifty vials of toxin, ten containing 500 skin test doses, ten containing 2,000 skin test doses, ten containing 8,000 skin test doses, ten containing 25,000 skin test doses, and ten containing 60,000 skin test doses. E. R. Squibb & Sons, New York.

Sulpharsphenamine—DePree. A brand of sulpharsphenamine (New and Non-official Remedies, 1927, p. 80). It is supplied in ampules containing, respectively, 0.1, 0.15, 0.2, 0.3, 0.4, 0.45, 0.6, 1.0 and 3.0 Gm. The DePree Co., Holland, Mich. (Jour. A. M. A., November 5, 1927, p. 1807).

Ephedrine Hydrochloride—Pemco. A brand of ephedrine hydrochloride—N. N. R. For a discussion of the actions, uses and dosage of ephedrine hydrochloride, see *The Journal A. M. A.*, March 19, 1927, p. 925. Prophylacto Manufacturing Co., Chicago.

Ephedrine Sulphate—P. D. & Co. A brand of ephedrine sulphate—N. N. R. For a discussion of the actions, uses and dosage of ephedrine sulphate, see *The Journal A. M. A.*, March 19, 1927, p. 925. Parke, Davis & Co., Detroit. (Jour. A. M. A., November 12, 1927, p. 1693).

Nason's Palatable Cod Liver Oil.—Cod liver oil containing 0.62 per cent of essential oils as flavoring, having a vitamin A potency such that 0.002 Gm. per day is adequate to promote the growth of young albino rats and a vitamin D potency such that 0.02 Gm. per day for eight days will cure experimental rickets in rats which have been deprived of vitamin D and of ultraviolet light. Tailby-Nason Co., Boston.

Typhoid Vaccine.—This typhoid vaccine (New and Non-official Remedies, 1927, p. 367), is also marketed in packages of 30 ampules (ten complete immunizations). The Gilliland Laboratories, Inc., Marietta, Pa. (Jour. A. M. A., November 19, 1927, p. 1783).

Ephedrine.—Ephedrina.—Ephedrine Base.—An alkaloid derived from *Ephedra equisetina*. The actions and uses of ephedrine are the same as those of the ephedrine salts. The free alkaloid is employed in mediums, such as oils, in which it is more soluble than the salts. Ephedrine occurs as an unctuous, almost colorless solid. It is soluble in alcohol, chloroform, ether and water.

Ephedrine—Lilly. A brand of ephedrine—N. N. R. It is supplied in the form of Inhalant Ephedrine Compound—Lilly, containing ephedrine—Lilly, 1 per cent (by weight) in a liquid composed of menthol, 0.66 Gm.; camphor, 0.66 Gm.; oil of thyme, 0.31 c.c.; liquid petrolatum to make 100 c.c. Eli Lilly & Co., Indianapolis.

Pollen Extracts—Cutter (New and Non-official Remedies, 1927, p. 34; *The Journal A. M. A.*, June 11, 1927, p. 1891).—Also marketed in single vial packages containing 5 c.c. of a 1:100 solution. Cutter Laboratory, Berkeley, Calif.

Pollen Extracts Concentrated—Cutter. Liquid obtained by extracting the dried pollen of plants with a liquid consisting of 67 per cent of glycerin and 33 per cent of a buffered saline solution. For a discussion of the actions, uses and dosage, see Allergic Protein Preparations, New and Non-official Remedies, 1927, p. 23. The following pollen extracts concentrated—Cutter, are marketed in single vial packages containing 5 c.c.: Alkali Weed Pollen Extract Concentrated—Cutter; Allscale Pollen Extract Concentrated—Cutter; Annual Saltbrush Pollen Extract

Concentrated—Cutter; Arizona Ash Pollen Extract Concentrated—Cutter; Bermuda Grass Pollen Extract Concentrated—Cutter; Black Walnut Pollen Extract Concentrated—Cutter; Box Elder Pollen Extract Concentrated—Cutter; Burning Bush Pollen Extract Concentrated—Cutter; Canary Grass Pollen Extract Concentrated—Cutter; Careless Weed Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Cocklebur Pollen Extract Concentrated—Cutter; Common Ragweed Pollen Extract Concentrated—Cutter; Corn Pollen Extract Concentrated—Cutter; Cottonwood Pollen Extract Concentrated—Cutter; False Ragweed Pollen Extract Concentrated—Cutter; Foxtail Grass Pollen Extract Concentrated—Cutter; Giant Ragweed Pollen Extract Concentrated—Cutter; Johnson Grass Pollen Extract Concentrated—Cutter; June Grass Pollen Extract Concentrated—Cutter; Lamb's Quarters Pollen Extract Concentrated—Cutter; Marsh Elder Pollen Extract Concentrated—Cutter; Mountain Cedar Pollen Extract Concentrated—Cutter; Mugwort Pollen Extract Concentrated—Cutter; Oak Pollen Extract Concentrated—Cutter; Olive Pollen Extract Concentrated—Cutter; Orchard Grass Pollen Extract Concentrated—Cutter; Plantain Pollen Extract Concentrated—Cutter; Red Root Pigweed Pollen Extract Concentrated—Cutter; Red Top Pollen Extract Concentrated—Cutter; Russian Thistle Pollen Extract Concentrated—Cutter; Rye Grass Pollen Extract Concentrated—Cutter; Sagebrush Pollen Extract Concentrated—Cutter; Shad Scale Pollen Extract Concentrated—Cutter; Timothy Pollen Extract Concentrated—Cutter; Tumbleweed Pollen Extract Concentrated—Cutter; Velvet Grass Pollen Extract Concentrated—Cutter; Western Ragweed Pollen Extract Concentrated—Cutter; Western Waterhemp Pollen Extract Concentrated—Cutter; Wild Oat Pollen Extract Concentrated—Cutter; Yellow Dock Pollen Extract Concentrated—Cutter. Cutter Laboratory, Berkeley, Calif. (Jour. A. M. A., November 26, 1927, p. 1873).

PROPAGANDA FOR REFORM

Gonococcus Immunogen, Gonococcus Immunogen Combined, Streptococcus Immunogen, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, and Pneumococcus Immunogen Combined Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Immunogen is the name applied by Parke, Davis & Co. to bacterial antigen products free or nearly free from bacterial cells and toxin. The firm requested the Council to consider a number (twelve) of these products in 1924. The Council decided to consider eligible for acceptance those simple immunogens in the case of which similar bacterial vaccines stood accepted. Regarding the "mixed" immunogens which had been presented, the firm was informed that adequate evidence for the value of these preparations was lacking, but that any new evidence for their therapeutic value would be considered. The firm presented evidence which permitted the acceptance of two of the simple immunogens. In view of the inquiries received concerning the advertising claims made for immunogens, Parke, Davis & Co. was informed that the Council desired to take definite action in regard to those which had not been made acceptable. The firm was requested to send the advertising for the, as yet unaccepted, immunogens that were being marketed together with any further information which would aid in determining their acceptability for inclusion in New and Nonofficial Remedies. On the basis of the available evidence the Council denied admission

of the gonococcus and streptococcus immunogens to New and Nonofficial Remedies because no simple vaccines representing these organisms stand accepted; the "combined" immunogens (Gonococcus Immunogen Combined, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, Pneumococcus Immunogen Combined) are held unacceptable for lack of adequate evidence of their therapeutic value. (Jour. A. M. A., September 17, 1927, p. 984).

Weldona A Piece of "Rheumatism Cure" Quackery.—In 1922 it was reported that an adult, with marked jaundice, was dying after continued use of Weldona tablets. At that time an analysis of Weldona had shown the presence of sodium salicylate. In 1924 an analysis showed the "Weldona Treatment" to consist of small, white tablets containing an emodin-bearing extract, and large, lavender-coated tablets containing sodium salicylate and an unidentified vegetable extractive. In 1925, the *Boston Medical and Surgical Journal* gave some case reports by Dr. Richard C. Cabot in which it was stated that a series of cases of acute yellow atrophy in patients having taken Weldona had come to his notice. In 1925, the Health Bureau of Rochester, New York, made some tests of Weldona and reported that unidentified alkaloids were found, together with salicylates or salicylic acid. In 1926, the A. M. A. Chemical Laboratory found the lavender colored tablets to consist essentially of salicylic acid and acetylsalicylic acid, extractives of an emodin-bearing drug with vegetable extractives, ground ginger and cinnamon. The medicinal part of the white tablets was found to consist of extract of cascara. Now in 1927, advertisements for Weldona are offered newspapers and to one such paper, the advertising agency handling the advertising gave the following as ingredients of Weldona: Neocinchophen, Extract of Cimicifuga, Fluid Extract of Phytolacca, Magnesium Carbonate Light and Powdered Extract of Cascara Sagrada. A commercial laboratory that analyzed Weldona in September, 1927, reported that it consisted largely of vegetable matter, with about 5½ per cent of mineral matter. The vegetable matter, was apparently, phytolacca and cascara sagrada, together with acetylsalicylic acid (aspirin) and salicylic acid. The laboratory did not satisfactorily prove the presence or absence of neocinchophen, but did report that tests for alkaloids showed none present. It seems evident from these several analyses that Weldona, like so many other "patent medicines," is a name rather than a thing—while the name has remained constant the composition has varied. (Jour. A. M. A., October 1, 1927, p. 1167).

ARC Epilepsy Remedy.—The medical profession has recently been widely circularized by the American Remedies Company of Rockford, Ill. The medical profession is asked to use the firm's "Reliable Remedy for Epilepsy" and is told by the firm that it does not "feel justified" in exposing its formula—that is, the medical profession is asked to prescribe a preparation of secret composition. The A. M. A. Chemical Laboratory analyzed the ARC Epilepsy Remedy and found it to consist of capsules, each containing about 1½ grains of phenobarbital (luminal) and a considerable amount of a laxative (emodin-bearing) drug and a small amount of dye. Is it possible that there are physicians who are so gullible and forgetful of their duty to their patients that they will give a dangerous drug in unknown dosage? A physician who uses or prescribes "ARC Epilepsy Remedy," giving so dangerous a drug as phenobarbital in unknown dosage, may lay himself open to a charge of doubtful practice. (Jour. A. M. A., October 1, 1927, p. 1167).

Asthmolysin.—Asthmolysin is, according to the advertising, "a combination of the suprarenal and pituitary hormones in distinct proportions," prepared by a "special method." There appears to be no scientific evidence to warrant the use of pituitary in bronchial asthma. Epinephrine is frequently used in some forms of asthma, but may be had pure and need not be prescribed in a secret preparation containing an undetermined amount. The 1927 Asthmolysin circular consists of testimonials from 121 physicians, of whom thirty-five are Fellows and thirty-three are members of the American Medical Association, while fifty-three are neither members nor Fellows. Such testimonials, given for a semi-secret preparation of unscientific character, are no credit to those members of the supposedly learned profession that gave them. (Jour. A. M. A., October 1, 1927, p. 1170).

Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Concentrated Orchitic Solution, also called Orchitic Substance Concentrated (Cousineau), is marketed by the California Endocrine Foundation Laboratories, Long Beach, California. According to the label on the specimen it is "A Preparation of Orcho-Plasm Ramm Derivative" while in an advertising booklet it is stated that it "consists of the small, hard, testicular gland of the healthy, young, live Goat, Ram or Monkey," and "contains saturation of the whole gland substance in solution ideally compounded." The Council found that many unwarranted and unsupported claims were made for the preparation and, hence, declared it inadmissible to New and Nonofficial Remedies. When the Council's statement was sent the California Endocrine Foundation Laboratories, the firm submitted a proposed revision of an advertising booklet. In the advertising the general impression is given that gland implants such as those of Voronoff are highly effective, and that the manufacturer's product, administered hypodermically, will give equally good or better results. Even if the proposed revision of claims is made, the preparation is still unacceptable for the reason that the manufacturer has not submitted any scientific evidence for the therapeutic usefulness and efficacy of the product. The Council, therefore, declared Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) unacceptable for New and Nonofficial Remedies. (Jour. A. M. A., October 8, 1927, p. 1267).

The A-Moy Anti-Fat Fake.—The A-Moy Company is a trade name used by one Charles E. Cessna, of whom the *Chicago Tribune* once said, he "at different times in his business career has been a loan shark, patent medicine vendor, and land promoter." Cessna's present anti-fat quackery consists in selling A-Moy Reducing Pills, which, according to a report, have been responsible for at least one death. (Jour. A. M. A., October 8, 1927, p. 1267).

Liver Diet in Anemia.—While liver seems to be presenting increasing evidence of its value in the treatment of anemia, physicians everywhere are finding it difficult to keep patients contented and happy while they are taking it. This state of affairs is due partly to the fact that few people can cook liver in any other way than by frying. Recipes taken from English and French sources include many ways of preparing liver for the table. (Jour. A. M. A., October 15, 1927, p. 1335).

Fever-Producing Methods in Treatment of General Paralysis.—Compilations have been made of the results obtained in cases of general paralysis treated with malaria. The treatment has also been applied to patients with syphilis of the central nervous sys-

tem. A microscopic study of the brain following treatment by malaria leads to the conclusion on the part of the investigator that in some cases in the future the term "recovery" rather than "remission" will be justified. Relatively little has been reported during the past year concerning relapsing fever or sodoku as a therapeutic measure in neurosyphilis. It seems likely that, if infectious disease methods are to persist, a contest might arise between malaria and sodoku. Possibly the inoculation with an infectious disease will not continue to be necessary in the production of therapeutic fever. Reports have been published on the production of fever for treatment in general paralysis by the use of injections of foreign protein. The method has many advantages and the few cases on record give promise of good results. (Jour. A. M. A., October 15, 1927, p. 1337).

Peruna—Ancient and Modern—The Eighteenth Amendment gave a great stimulus to one branch of the "patent medicine" industry—that devoted to the exploitation of alcoholics sold under the guise of home remedies. Originally containing about 27 per cent of alcohol and very little else, the use of Peruna as a beverage in those parts of the country that were at that time nominally "dry" was notorious. Cases of acute and chronic alcoholism, and even, in some cases, of death from its use are matters of record. In 1905 the sale of Peruna to Indians was prohibited. In the same year the Bureau of Internal Revenue classed Peruna as an alcoholic compound advertised and sold as a medicine, but without the addition of drugs in sufficient quantity to change materially the character of the alcoholic liquor. Then the formula of Peruna was changed and sufficient senna added to satisfy the Internal Revenue Department that Peruna could no longer be used for beverage purposes. At that time the alcohol content was cut down from 27 per cent to 20 per cent. When national prohibition was enacted, the alcohol content of Peruna was further reduced to 12 per cent. Now, within the past few months, another change has taken place. The manufacturers have added 6 per cent alcohol and have taken out the senna! They have also taken out golden seal, which for some years has been one of the alleged ingredients; on the other hand they have added wild cherry, gentian and potassium iodide. The theory under which alcoholic "patent medicines" are supposed to be tolerated by the Internal Revenue Department is that they shall contain the minimal amount of alcohol possible. Just why the manufacturers of a nostrum with a history behind it such as Peruna should have been permitted to increase the alcohol content of their preparation 33 per cent is another of those mysteries that only government bureaus can explain. (Jour. A. M. A., October 22, 1927, p. 1444).

Carl C. Lantz—Quack.—For many years Carl C. Lantz, of New York City and Atlantic Highlands, N. J., has been quacking it through the mails. The *Cosmopolitan Magazine*, for July, 1906, contained an advertisement for "The Adonis" sold at that time by Mr. Lantz, who was trading as the Lantz-Adonis Co., in New York City. The Adonis was said to preserve and increase mental, physical and genital vigor. *Vanity Fair* for April, 1916, contained an advertisement of four nostrums put out by Lantz, who at that time operated under the trade name of C. C. Lantz Laboratories. The preparations were "Lantz Face Balm," "Lantz Hair Life," "Lantz Foot Tingle," and "Lantz Riggs Remedy." In 1918 he offered "Lantz Absorbent Pastilles" which were sold as "the modern remedy for the prostate gland, the seat of sexual weakness." He also offered the "Lantz Supporter" and his "Vacuum Congestor" a device alleged

to be sold as "a means to develop, strengthen and enlarge shrunken or naturally small organs." On October 10, 1927, the Postmaster General issued a fraud order against Carl C. Lantz covering both the New York and the Atlantic Highlands, N. J., addresses. (Jour. A. M. A., October 29, 1927, p. 1534).

Di-Citirin.—In an advertising circular this product is said to be "Mono Potassium Diacetyl Citrate" and claims are made for its action that by no stretch of even a lively imagination could seem to be inherent in a substance of such composition. The report of thirty cases of hypertension given in the advertising is far from being sufficiently detailed or extensive to be convincing. In vain one looks for Di-Citirin among the agents described in New and Nonofficial Remedies. This may be taken to mean that it is unacceptable to the Council on Pharmacy and Chemistry, or that it had not yet been submitted to or passed on by the Council. In either case it is well for the physician to refrain from using it until it has been passed by the Council. (Jour. A. M. A., October 29, 1927, p. 1537).

Blueberry Leaf Extract.—The Council on Pharmacy and Chemistry publishes a preliminary report on a blueberry leaf extract which has been proposed for use in the treatment of diabetes. A report on this product was read at the last meeting of the American Medical Association by F. M. Allen, who had continued the work begun in Germany by Wagner and others. The product used by Allen was made by E. R. Squibb & Sons; it is not being marketed and will not be offered to physicians in general until its usefulness has been demonstrated. The Council published its preliminary report to call attention to the possible usefulness of the blueberry leaf extract used by Allen. At the same time the Council points out that thus far no standards have been developed which will insure a uniform product; that the actual value of the product in the treatment of diabetes has not yet been proved; and that such proof must come from workers who have the necessary clinical opportunities and laboratory facilities on which to base judgment. (Jour. A. M. A., November 5, 1927, p. 1607).

Introducing New Drugs.—The report on blueberry leaf extract which the Council on Pharmacy and Chemistry publishes, illustrates the praiseworthy and increasing tendency on the part of the large pharmaceutical firms to adopt the ideal method of introducing a new drug, namely, demonstration of the drug's chemical identity and uniformity; report of animal experiments giving promise of therapeutic value; report of clinical trials under the auspices of the discoverer; and provision for confirmatory study of the drug's therapeutic worth by independent investigation. What a contrast to the unscientific and haphazard flooding of the market with new and untried drugs that formerly obtained here and still obtains abroad. The change has arisen from the increasingly critical attitude of the American medical profession. This, it seems reasonable to believe, is due to the faithful and persistent work of the Council on Pharmacy and Chemistry. (Jour. A. M. A., November 5, 1927, p. 1610).

Book Announcements

Proceedings of the Twenty-first Annual Convention of the Association of Life Insurance Presidents. Held in the Hotel Astor, New York, N. Y., December 8 and 9, 1927. 8 vo. Paper. 288 pages.

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Editorial

Blood and Iron.

The color of the whole blood is red, although white blood cells form a constituent part of the blood. The color scheme of the bile is yellow, golden yellow, sometimes with a greenish tint. The color of urine is amber or yellowish, sometimes spoken of as of straw-color. The play of color in blood and muscles, in the bile, and in urine, partaking of supplementary roles, appears to afford occasion for comment in connection with iron and iron reserve of the body. Red blood gives the body its color scheme. Deficiency of red betokens a deficiency of iron, for iron enters into the formation of hematin in hemoglobin of the red blood corpuscles. Hemoglobin is a complex substance composed of globin (histons) and a pigment: hematin, ($C_{34}H_{25}N_4FeO_5$). Hematin forms about 4 per cent, while protein forms about 86 per cent of the molecule. The blood contains about five million, normally, of red blood cells per cubic millimeter. Physiologists estimate that there are 14 grams of hemoglobin to each 100 c.c. of blood; that in a man weighing 68 kilograms there is 500 to 700 grams of hemoglobin, and that this hemoglobin is distributed among some 25,000,000,000 (twenty-five billion) red blood cells. The red corpuscles are probably constantly undergoing formation and destruction. The length of life of the red corpuscle is estimated to be from two to four weeks. It is not known just how red cells go to pieces, whether in the stream by hemolysis or in the liver and spleen

by special agencies of dismemberment as Kupffer cells which, in digesting red blood cells, liberate iron of hemoglobin. Study of the termination of the vast hemoglobin content of the body and its final elimination has been going on in various laboratories for some time. The formation of red blood cells is also an interesting page in physiology, but suffice it to note here that the bone marrow furnishes the body with the red blood cell and outfits it with hemoglobin mechanism with its hematin content. The destruction of red blood cells and the liberation of hematin, and its chemical change and its final liberation from the body as bile pigment and urobilin is another phase of the subject which we can not follow here.

The foregoing comment is made in order to call attention to an article by Williamson and others (*A. I. Medicine*, Vol. 40, No. 5, p. 669), on iron reserve in the body. While it has been generally thought that iron in the tissues, particularly the liver and spleen, serves as an iron reserve for the formation of hematin in hemoglobin, experiments show this to have been unavailable.

These workers show that a reservoir of readily utilizable iron may be built up in the liver and spleen of rats by placing them on a diet containing liver and that this store may be used promptly after producing an anemia by bleeding the animal.

They observed that animals placed on a liver diet possess 141 per cent more iron in the spleen and 57 per cent more iron in the liver than animals fed on a casein diet, although those fed on caesin appeared to produce enough iron to maintain a concentration of hemoglobin adequate to the normal destruction of hemoglobin.

BILE PIGMENT.

The belief that bile pigments are formed in the liver from hemoglobin either by the liver cells themselves or by a combined action of the liver and endothelial (Kupffer) cells is questioned.

Mann has stated that bilirubin accumulated progressively in the body after the liver had been removed. He attempted by a study of the difference in bilirubin content of arterial and venous blood from given organs to run down the site of the formation of bilirubin. Since the liver had been eliminated as the only source, bilirubin content of major arteries and veins were compared. The

bilirubin content of blood going and coming from the kidneys and intestines was found to be the same. There was an increase of bilirubin in venous blood from spleen, limbs, thorax and head. Venous blood showing the greatest amount of bilirubin was from the spleen, skin, fascia, muscle and bone marrow.

As a result of Mann's study it was stated that bilirubin is added to the blood as it traverses the spleen and bone marrow. Whether or not, bilirubin is formed in the liver, Mann states, has not been determined. While the site of formation is open to question, the appearance of this coloring in the bile, as secreted from the liver, shows that the pigment, arising from hemoglobin destruction in spleen and bone marrow, finds its egress from the blood system into the intestinal tract. Its further function and fate in the intestines is not now to be considered.

MUSCLE PIGMENT.

Red muscle coloring is believed to be due to a special pigment, which, according to Howell, resembles in its structure and properties hemoglobin. This pigment is known as myohematin. It probably possesses power of holding oxygen in loose combinations and in this way plays a part in exchange of oxygen and carbon dioxide.

URINE PIGMENT.

A late editorial in *J. A. M. A.* (Dec. 24, 1927), comments on pigment in the urine. The amber urine, with its urinary pigment, finds its source of coloring from the blood. Urochrome has excited much inquiry, as has bile pigment. Its site of formation, its source, have long excited speculative inquiry, but, from scientific point of view, much remains unproven, although the chemistry and physiology of normal pigment of the urine are still under scrutiny. One may easily fall back upon hemoglobin dissolution and destruction as a possible source.

The quantity variations of elimination of urinary pigment are probably proportional to the variations in the metabolism of blood, liver, spleen, bone marrow, muscle tissue. Fasting, administration of acids, any stimulation of metabolic activity brings on increased discharge of pigment in urine. There seems to be parallel between urochrome elimination and basal metabolic rate. Whether it arises from hemoglobin destruction or tissue

protein, or respiratory pigment in muscle, liver, spleen, or bone marrow; the actual origin of its chemical formation is yet an unsolved problem.

News Notes

American College of Surgeons—Local Section.

The Sectional Meeting of the American College of Surgeons for the states of Virginia, West Virginia, Maryland and the District of Columbia is to be held at Roanoke, Virginia, on January 18 and 19, 1928, with headquarters at the Patrick Henry Hotel.

The program includes dry clinics in the Roanoke hospitals, clinical addresses, scientific meetings, and a Hospital Standardization program consisting of a round table conference, discussions, and visits to hospitals. A community Health meeting will be held on the evening of January 18.

A distinguished group of visiting surgeons will participate in the program of clinical addresses and scientific papers. The complete detailed program has been sent members.

Information about the various hospital conferences and scientific meetings can be obtained at the Registration Desk in the Patrick Henry Hotel.

Mark your calendar now for these dates. The Executive Committee is depending upon every Fellow of the College to do his part in making the Virginia, West Virginia, Maryland and District of Columbia Sectional Meeting a success.

Enforcement of Caustic Poison Act Begun.

The branch stations of the Food, Drug and Insecticide Administration of the United States Department of Agriculture, which are located in sixteen of the leading trade centers of the United States, have been instructed to make a survey in their respective territories of the products subject to the Federal Caustic Poison Act and to initiate such action as may be necessary for the enforcement of the act.

The purpose of the act is to safeguard the distribution and sale of certain dangerous caustic or corrosive acids, and alkalies in interstate and foreign commerce. It became a law on March 4, 1927, but no penalties were to be imposed until September 4, 1927, six

months after its enactment. Manufacturers of the products subject to the act have now had over nine months in which to familiarize themselves with the requirements of the act and to label their preparations in accordance with its terms. It provides in general that dangerous caustic or corrosive acids and alkalies, when in a container suitable for household use, shall bear a conspicuous and easily legible label containing the common name of the substance; the name and place of business of the manufacturer, packer, seller, or distributor; the word "Poison" to be in uncondensed, Gothic capital letters, in type not smaller than the largest type used on any part of the label; the label shall also bear directions for treatment in case of accidental personal injury.

Unveil Tablet to Dr. William Brown.

The Susan Riviere Hetzel Chapter, Daughters of the American Revolution, of Washington, D. C., recently unveiled a bronze tablet on the grave of Dr. William Brown, at old Pohick Church, on the Richmond-Washington Highway. Dr. Brown is known as the personal friend and physician of General George Washington, and physician general in the Continental Army. In addition to his services in the Revolutionary War, Dr. Brown should be honored for his work on the first American Pharmacopeia, an original copy of which is kept in a safety vault in the War Department in care of the Surgeon General.

It is a matter of interest that Dr. William Brown is an ancestor of one of our own members—Dr. Alexander G. Brown, Jr., of Richmond.

Married.

Dr. Wilkins Jeffries Ozlin, Dundas, Va., and Miss Mary Adams Smallwood, Roanoke, Va., December 21.

Dr. John Thomas Daves, Danville, Va., and Miss Mary Weldon Kerfoot, Shawnee, Okla., December 13.

Dr. John Arnold Board, Altavista, Va., and Miss Mamie Bowman, Lynchburg, Va., December 14.

Dr. John Robert Bagby and Mrs. Perle Stearnes Robinson, both of Newport News, Va., December 10.

Dr. William Richard Morton and Miss Myrtle Moore Granger, both of Richmond, December 20.

Dr. Luther L. Vann, formerly of Danville,

Va., and Miss Cornelia Howell, of Mars Hill College, Asheville, N. C., December 23.

Dr. E. G. Moore, Elm City, N. C., and Miss Ursula Daniel, Halifax, N. C., November 10. **Eastern Shore Hospital.**

It is announced that the new hospital which is being erected at Nassawadox, near the border of Accomac and Northampton Counties, Virginia, is to be opened about July 1, 1928. The local committee has been hard at work raising the necessary funds and fully half the people on "The Shore" have contributed to the hospital fund. It is a four story brick and stone building and will be equipped in an up-to-date manner. The staff of the Johnston-Willis Hospital, Richmond, has agreed to assist the local profession and will have a member of its staff in the hospital at all times.

To Succeed Dr. Geo. H. Preston.

Dr. Harvey Coghill, Richmond, who for sometime has been away studying under the Commonwealth Fund of New York, will succeed Dr. George H. Preston, resigned, as director of the Children's Memorial Clinic in this city. He will enter upon his duties about April the 1st. Dr. Basil B. Jones will continue as consulting pediatrician. Dr. Preston left the end of the year for Baltimore, where he is now executive secretary of the newly organized Maryland Mental Hygiene Society Clinic in that city.

Dr. W. E. Chapin, a former Richmonder and alumnus of Johns Hopkins University, is now in charge of the pediatric work, and Dr. Helen Langner, of the Yale Medical School, recently with the Girls' Service League of New York City, has the psychiatric work.

The Medical Society of the District of Columbia,

At its annual meeting in December, elected officers for the year 1928, as follows: President, Dr. Oscar B. Hunter; vice-presidents, Dr. Robert Young Sullivan and Dr. Louise Tayler-Jones; secretary-treasurer, Dr. Coursen B. Conklin (re-elected). New members of the Executive Committee, for a term of three years, are: Dr. Ralph M. LeComte, Dr. Frank Leech, and Dr. Charles S. White. Dr. Philip S. Roy was re-elected delegate to the American Medical Association with Dr. Thomas A. Groover as alternate.

Dr. J. B. Dalton,

Richmond, left the first of this month for New York, to take post-graduate work in orthopedic surgery. He will spend the first

year at the Hospital for Ruptured and Crippled in New York City, following which he will be at the Reconstruction Hospital in that city for several months. He will then go to the Robert Jones Clinic, Liverpool, England, for several months before returning to Richmond.

The Church Hill Medical Society of Richmond,

At its annual meeting in December, elected Dr. William R. Weisiger as president for the coming year, Dr. J. G. Trant vice-president, and re-elected Dr. R. S. Faris secretary-treasurer. Dr. J. Gordon Boisseau was elected reporter and Dr. B. L. Phillips librarian.

Dr. C. D. Kunkel,

Pulaski, Va., is out again, after having been sick for several weeks.

Scholarships on Child Development.

A limited number of national scholarships in child development for 1928-29 have been announced by the National Research Council, under a grant from the Laura Spelman Rockefeller Memorial. They are open to college graduates of the United States and Canada with at least a year of graduate work and training in sciences basic to the study of child development. They carry a stipend of \$1,000 for nine months' work, with an option of an additional \$200 for a summer session of six weeks. Application should be made by January 21, 1928, to L. R. Marston, executive secretary, Committee on Child Development, National Research Council, Washington, D. C.

New Mental Hygiene Clinic in New York City.

A mental-hygiene clinic, which is an outgrowth of the experimental clinic established in 1922 by the National Committee for Mental Hygiene in co-operation with the Association for Improving the Condition of the Poor, was opened in New York City on October 1. This clinic is operated jointly for and by the State Charities Aid Association, the New York Association for Improving the Condition of the Poor, and the Brooklyn Bureau of Charities. An annual budget of \$25,000 has been guaranteed for five years, half the funds being provided by the agencies and half by the Commonwealth Fund.

Dr. G. E. Faulkner

Recently returned to his home in South Boston, Va., after a visit of some length to friends in Tennessee.

Heads Local Dental Society.

Dr. John Bell Williams, business manager and member of the staff of McGuire Clinic, this city, has been elected president of the Richmond Dental Society, for the current year.

President of State Board of Medical Examiners.

The Virginia State Board of Medical Examiners, at its meeting in Richmond, last month, elected its vice-president, Dr. Philip W. Boyd, of Winchester, as president to succeed the late Dr. Robert Glasgow. Dr. J. H. Ayres, Accomac, was elected vice-president of the Board. The next meeting of the Board takes place June 19-22, 1928.

Civil Service Positions Open.

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations, applications to be rated as received until the end of June, 1928:

Assistant medical officer, associate medical officer, medical officer and senior medical officer;

Dietitian;

Graduate nurse, graduate nurse (visiting duty), and graduate nurse (junior grade).

Proposed Regulation of Child Marriage in India.

A bill for the prevention of marriage of Hindu girls below the age of twelve and boys below fifteen came before the Indian National Assembly on September 15, 1927, and was discussed for the whole sitting. An official amendment that the bill be circulated for public opinion was negatived, and the assembly thus approved the principle of legislative prevention of child marriage.

The Southern Surgical Association,

Meeting in Augusta, Ga., the middle of December, had the record meeting in its history of forty years, with 238 surgeons, their wives and guests present. Out of the scientific program of forty papers thirty-seven were read and discussed. Dr. Guy Hunner, of Baltimore, presided. Seven new members were elected to Fellowship as follows:

Dr. Arthur Shipley, Baltimore, Md.

Dr. Carrington Williams, Richmond, Va.

Dr. R. W. Bolling, New York City.

Dr. Guy Aud, Louisville, Ky.

Dr. L. H. McKinnie, Colorado Springs, Col.

Dr. Willis D. Gatch, Indianapolis, Ind.

Dr. L. W. Grove, Atlanta, Ga.

The officers elected for the ensuing year were: President, Dr. Arthur C. Scott, Temple, Texas; Vice-Presidents, Dr. Robert C. Bryan, Richmond, Va., and Dr. Robert L. Rhodes, Augusta, Ga.; Treasurer, Dr. Julius H. Taylor, Columbia, S. C., and Secretary, Dr. Robert L. Payne, Norfolk, Va. The two latter officers were elected for a period of five years. The next meeting will be held December 11, 12 and 13, 1928, at The Greenbrier, White Sulphur Springs, West Virginia.

Dr. O. B. Darden,

Richmond, Va., has been elected president of the Duke University Alumni Association of Richmond, Petersburg and vicinity, for 1928.

Dr. B. B. McCutchan,

Clifton Forge, Va., was recently elected one of the directors of the Kiwanis Club of that city, for the present year.

Compensation for Child Workers in Illinois.

On July 1, 1927, the new provisions of the Illinois workmen's compensation act came into effect, under which illegally employed children who are injured in industrial accidents are now entitled to the benefits of the act and will also receive compensation amounting to one and a half times as much as they would have received if they had been legally employed. Before this legislation was passed illegally employed children had no rights under the compensation act but had to bring suit against their employers under the common law in case of injury. This remedy, however, was tried in comparatively few cases because of the cost, uncertainty, and delay of court procedure. It is expected that under the new law employers will observe more carefully the State child labor law and will demand adequate proof of age from their minor workers.

Central Psychiatric Hospital Association.

During the meeting of the American Psychiatric Association this year in Cincinnati there was formed the Central Psychiatric Hospital Association, which is composed of private sanitariums for the care and treatment of nervous and mental diseases. The organization was the culmination of several years' thought and a feeling that the necessity existed for such an association. At Minneapolis in October permanent officers were elected as follows:

President, Dr. Thomas Ratliff, Cincinnati, Ohio; Vice-President, Dr. Russell Doolittle, Des Moines, Iowa; Secretary-Treasurer, Dr. D.

A. Johnston, Cincinnati, Ohio. Councillors, Dr. Frank Norbury, Jacksonville, Ill., and Dr. Karl Menninger, Topeka, Kans.

The purposes of this Association are to foster co-operation among private hospitals for nervous and mental diseases for their mutual benefit and to promote and maintain higher standards, increase efficiency of organization and the advancement of scientific care and treatment for those in their care.

A committee on standards was to meet with the council in Chicago, December 14, 1927, to formulate standards for hospitals of this type.

College Rank Conferred Upon St. Luke's Hospital at Tokyo.

State recognition of the high rank of Saint Luke's International Hospital School for Nurses, Tsukiji, Tokyo, was officially confirmed by the Imperial Japanese Department of Education by the publication under date of November 24, 1927, of an official decree conferring college (semmon gakko) rank on the institution, the course of study being for three years, and one year extra for those taking special higher training.

The School is the first institution for nurses in Japan to be thus recognized, no girls being admitted without a diploma from a girls' high school. Saint Luke's International Hospital is under the management of the American Episcopal Mission, its head being Dr. R. B. Teusler, surgeon to the American Embassy.

New Hospital for Crippled Children in New Jersey.

A citizen of New Jersey has recently endowed for \$1,000,000 a new home and hospital for crippled children to be built in Shrewsbury Township as a memorial to his son, and to be known as the Raleigh Fitkin Memorial Institution. It is to educate the children as well as to improve their physical condition. A self-sustaining farm will be operated in connection with it.

Officers in Omega Upsilon Phi Fraternity.

Three Richmond alumni of Nu Chapter, located at Medical College of Virginia, were elected as grand officers of Omega Upsilon Phi Medical Fraternity at the national meeting held recently in Philadelphia. They are: Dr. W. Ambrose McGee as Senior Grand Master; Dr. Emmett H. Terrell as Grand Scribe; and Dr. Clifford A. Folkes as Grand Chancellor of Exchequer. At this meeting, Mrs. McGee was awarded a \$25.00 prize for the best song submitted to the 1927 convention.

Dr. and Mrs. Charles E. Conrad,

Harrisonburg, Va., recently enjoyed a vacation spent in New York City.

Diagnostic Standards of Tuberculosis.

Early in this year, all tuberculosis associations in the United States plan to put on an early diagnosis campaign.

In this connection, it is stated that in 1917 a Committee on Diagnostic Standards, appointed by the National Tuberculosis Association, set to work to formulate as simply and accurately as possible standards and criteria for the diagnosis of tuberculosis. The seventh edition of the booklet prepared by this committee—"Diagnostic Standards for Pulmonary and Glandular (Hilum) Tuberculosis"—was published November, 1926. It contains much of interest for the general practitioner and tuberculosis specialists, and may be obtained free from the National Tuberculosis Association, 370 Seventh Avenue, New York City.

U. S. Public Health Service Annual Report.

The Surgeon General of the U. S. Public Health Service, in his annual report, states that health conditions generally throughout the world were better during the year ended June 30, 1927, than for any previous year on record. The first half of the year covered in this report was characterized by unusually low death rates in foreign countries. The influenza epidemic which affected a considerable part of Europe at that time kept it from being much lower.

The health of the people in the United States was generally good during the period reported, as compared with previous years, the death rate for all causes for the calendar year of 1926, in 28 states, being 12.1 per 1,000 population. There was an increase in this period in deaths from respiratory diseases but a decrease in the death rate from a number of diseases, the case and death rate for diphtheria being the lowest ever recorded. This, it was stated, was undoubtedly the result of the use of antitoxin and toxin-antitoxin. The work of the Service is far-reaching and the report is excellent.

In closing, the Surgeon General makes several recommendations for the co-ordination of public health activities which would tend to eliminate duplication of effort in administration, research, and educational measures, such as would prove a decided step forward in the public health work of the United States.

Babies' Hospital to be in Medical Center.

Excavations have been begun for a twelve story building for the Babies' Hospital of New York City, as the eleventh unit of the New York Medical Center. It is expected that it will cost approximately a million and a half to build and equip this building, and a campaign will be put on during the winter months to raise money for this purpose.

World Child-Labor Standards.

Eighteen countries have ratified the draft convention adopted by the International Labor Office and submitted to the member nations of the League of Nations, which places the minimum age for entrance into industry at 14 years, and 20 countries have ratified that prohibiting night work of minors under 18 in industry, with certain exceptions for those over 16.

The Seaboard Medical Association of Virginia and North Carolina

Held a splendid meeting in Norfolk, Va., early in December, under the presidency of Dr. B. R. Kennon of that city. The papers were excellent and freely discussed and the oyster roast the last day was enjoyed by all. The following officers were elected for the 1928 session which is to be held in Washington, N. C., next December: President, Dr. David T. Tayloe, Jr., Washington, N. C.; vice-presidents, Dr. C. W. Eley, Portsmouth, Va.; Dr. S. P. Bass, Tarboro, N. C.; Dr. C. C. Smith, Norfolk; and Dr. V. P. Perry, Kinston, N. C. Dr. Clarence Porter Jones, Newport News, Va., and Dr. A. M. Burfoot, Fentress, Va., were re-elected secretary and treasurer, respectively.

American Social Hygiene Association.

As evidence of the large amount of work accomplished by this Association in the past year, it is stated that they covered 300,000 miles in their field work during 1927, and the Association's staff gave a total of 1,125 lectures, which were attended by 260,000 persons. Much other work is featured in the report of this Association which endeavors to help where service is needed. It is interesting to note that the Association gave special summer courses in lectures at the University of Virginia and William and Mary College, and a special institute for teachers was provided also in Harrisonburg, Va.

Dr. Emory Hill,

Richmond, Va., by invitation, gave an address at the annual dinner of the Indiana

Academy of Ophthalmology and Otolaryngology, in Fort Wayne, the middle of December.

Thanks to our Members.

The responses have been good to the blue slips placed in the December journals. We realize, however, that December is a heavy month, with Christmas, taxes, automobile licenses and innumerable other matters to wind up a year. Now that we are getting back to normal again, however, we hope many more members may look up the "blue slips" in their December journals and send checks for 1928 dues. No one knows better than doctors what it costs in time and postage to get out bills. This is just "a word to the wise".

Employment Success of Mental and Physical Defectives in England.

Of 1,056 children 18 years of age or under, who in 1926 were "after-care" cases of special schools for mental defectives in London, 801 were found to be gainfully employed, 128 were employable though temporarily out of work, and only 88 were unemployable, according to the annual report of the London County Council for 1926. The After-Care Association for blind, deaf, and crippled children reported that during a recent year 1,248 of 1,580 former inmates of institutions for these classes of children were known to be gainfully employed, 123 were found unemployable, and the remainder were continuing training or were not yet placed.

Dr. Claude M. Lee,

Who, with his family returned from China when all foreign missionaries were ordered to leave the country last summer, recently received orders to return to his post and expected to leave early in January for Shanghai where he will be located while re-organizing his work and hospital at Wusih.

Dr. C. H. Iden,

Berryville, Va., has been elected junior warden for Treadwell Lodge A. F. & A. M., of that place, for the year 1928.

The Southern Medical Association,

At its meeting in Memphis, Tenn., in November, elected Dr. William R. Bathurst, Little Rock, Ark., president; Dr. Edward C. Ellett, Memphis, and Dr. William L. Dunn, Asheville, N. C., vice-presidents; and re-elected Mr. C. P. Loranz, Birmingham, Ala., secretary-manager. The next meeting is to be held in Asheville, N. C., November 12-15, 1928.

The Virginia State Health Association,

Meeting in Suffolk, January 4th, under the presidency of Dr. L. L. Williams, of the State Health Department, elected the following officers for the ensuing year: President, Dr. C. B. Ransome, Roanoke; vice-presidents, Dr. C. H. Dawson, Suffolk, and Dr. P. M. Chichester, Clarendon; secretary-treasurer, Dr. Powhatan S. Schenck (re-elected), Norfolk.

Dental Work for School Children in Germany.

Of 92 German cities having populations of more than 50,000, a total of 50 are maintaining dental clinics for school children, while in the other cities free examinations and treatment are provided at university clinics, by private dentists employed by the municipality, or through sickness-insurance funds. In at least 28 cities the service is extended to the compulsory continuation schools. The municipalities meet almost the entire cost of the service, though some collect a small fee from the patients.

No Juvenile Crime Wave in Norfolk, Va.

The juvenile and domestic relations court of Norfolk, Va., has reported that since its establishment in 1919 less than 1 per cent of the minors under 18 years of age who have been brought before the juvenile court have subsequently been convicted of any criminal offence. Moreover, the total volume of crime in the city has apparently steadily decreased. The total indictments for felony before the grand jury during 1923-1927, inclusive, were less than half the number during the five-year period immediately preceding.

Dr. Warren T. Vaughan,

Of Richmond, Va., addressed the Academy of Medicine of Toledo, Ohio, at their December meeting on "The Correlation of Specific and Non-Specific Factors in Allergy."

Dr. A. S. Davis,

Of the class of '26, Medical College of Virginia, after a year's internship at St. Luke's Hospital, San Francisco, Cal., is now located at 9311 East Fourteenth Street, Oakland, Cal.

Dr. Allan M. Kimbrough,

Who has been for sometime taking post-graduate work in orthopedics in the New York Orthopedic Dispensary and Hospital, spent the holidays with relatives in Richmond, Va., his former home.

The Dangerous Age in Employment.

Children 16 and 17 years of age suffer proportionately more injuries while at work than

children either older or younger, according to a recent report of the Wisconsin Industrial Commission on child labor in that State.

Dr. Albert E. Wilson,

Norfolk, Va., announces the removal of his offices from Withers Building to Medical Arts Building, that city.

Dr. and Mrs. Howard Masters,

Richmond, spent the holiday season at their former home in Fredericksburg, Va.

Intelligence Tests for Blind Children.

During the last 10 years, intelligence tests adapted for blind children from the tests used for children with normal sight have been given in more than half the schools for the blind in the United States. The Pennsylvania Institute for the Instruction of the Blind in Pennsylvania and the Perkins Institute for the Blind in Massachusetts have undertaken experimental studies in the psychology of the blind, in the hope that such research will ultimately do for the education of the blind what is being done for the general educational system of the country, through the classification of students according to ability, the diagnosis of their individual difficulties, and vocational guidance.

Dr. Richard P. Bell,

Staunton, Va., was recently elected president of the Staunton and Augusta Alumni Association of the University of Virginia for 1928.

Dr. J. Shelton Horsley,

Richmond, on December the 7th, presented a paper by invitation before the Society of Alumni of Bellvue Hospital, New York City, his subject being "Some Underlying Principles of Intestinal Therapy." Dr. Horsley is one of the five honorary members of this Society.

The American Legion Believes in Home Care.

Of the 523 children in care of the child-welfare division of the American Legion at the end of October, 391 were in the mothers' homes, 39 with relatives, 45 in foster homes, and only 48 in legion billets, local institutions, or hospitals. During October the per capita cost of providing for children in their own homes was \$10.75; in local institutions, \$24.48; and in legion billets, \$70.

The Richmond Eye, Ear, Nose and Throat Society

Held its annual meeting in this city, Decem-

ber the 12th, with Dr. T. E. Hughes, Vice-President, presiding. Dr. R. E. Mitchell was elected President for the coming year and Dr. W. S. Hodnett, Vice-President. Dr. F. H. Lee was re-elected Secretary-Treasurer.

It was announced at this meeting that the retiring president, Dr. R. H. Wright, who was badly hurt in the accident at Tate Field, early in November, had left the hospital the first week in December and expected to be able to resume his practice the first of February.

Dr. and Mrs. Tom Williams

Have returned to Miami Beach, Fla., after spending the summer and early fall in Italy. Since their return, Dr. Williams has visited the principal neurological clinics in the East and, on his way South, spoke before several medical societies and colleges.

Dr. and Mrs. J. T. Buxton,

Who have been for several months in the Adirondacks, spent the Christmas holidays with their family in Newport News, Va. They left early in January for California and points of interest on the West Coast, and will be away several months longer.

The Richmond Pediatric Society,

At its meeting the first of this month, elected Dr. T. D. Jones president; Dr. John S. Weitzel vice-president; and re-elected Dr. W. Ambrose McGee secretary-treasurer.

Dr. Samuel Downing,

Newport News, Va., was called to his home in Lancaster County, Va., the latter part of December by the illness and death of his father, Senator Thomas A. Downing,—for many years a prominent and popular figure in Virginia politics.

Dr. James A. Martin,

Lumberton, N. C., of the class of '15, Medical College of Virginia, was elected President of Robeson County, N. C., Medical Society, at its regular meeting the middle of December. At the same time, Dr. E. L. Bowman, Lumberton, of the class of '14, was elected a Censor. Other officers elected at this meeting were Dr. C. T. Johnson, Red Springs, Vice-President, and Dr. J. N. Britt, Lumberton, Secretary-Treasurer. The other Censors are Drs. J. McN. Smith, of Rowland, and R. S. Beam, of Lumberton.

Dr. Frank McLeod, Florence, S. C., was the speaker of the evening, and told of the advances in medicine and surgery since he began practice nearly forty years ago.

Dr. James L. Early,

Radford, Va., was elected one of the directors of the Radford Kiwanis Club, at its annual meeting early in December.

Will Speak in Richmond.

Dr. Louis B. Wilson, director of the Mayo Foundation for Medical Education and Research, will be the founder's day speaker of the ninetieth session of the Medical College of Virginia, Richmond, on Friday, January 20, 1928. At the same time the cornerstone will be laid for Cabaniss Hall, the new women's dormitory which will serve chiefly the school of nursing. This building will house one hundred and thirty-four young women and will cost approximately two hundred thousand dollars.

Dr. Charles McCulloch,

After a five year "furlough", recently resumed the practice of medicine, with offices in Lexington, Va.

For Sale:

X-Ray Tube Stand and High Frequency Outfit, in excellent condition. Diethermy, Oudin, Tesla currents; Cautery and Diagnostic Lights obtainable conveniently. Address "Tesla," care VIRGINIA MEDICAL MONTHLY.

Obituary

Dr. Presley W. Moorehead,

Clarendon, Va., died at his home in that place, November 29, at the age of sixty-seven. Dr. Morehead studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1884 and had been for some years a member of the Medical Society of Virginia. His wife and several children survive him.

The following resolutions were adopted on the death of Dr. Morehead by the Arlington County Medical Society, at a called meeting on December the 5th:

WHEREAS, It has pleased our Heavenly Father to remove from the scene of his earthly labors our fellow practitioner, Presley W. Morehead, M. D., of Clarendon, on Tuesday, November 29, 1927; therefore, be it

RESOLVED, That the physicians of Arlington County deplore the death of Dr. Morehead, and hereby express our sincere sorrow and grief to his beloved wife and children, and his many friends, and be it further

RESOLVED, That a copy of these resolutions be sent to his bereaved wife, whom we sincerely condole with on her loss; that a copy of these resolutions be spread upon the minutes of the Society.

H. A. HORNTHAL, *President*,
B. H. SWAIN, *Sec.-Treas.*,
J. H. WALTON,
W. C. WELBURN,
Committee.

Dr. Morton Eldridge Hundley.

A cablegram received in Martinsville, Va., on January the 2nd, announced the death that morning of Dr. Hundley, of that place, at Saint Moritz, Switzerland, following an illness of several days with pneumonia. Dr. Hundley was recently married for the second time and had gone to Europe with the expectation of spending the winter months. He was fifty-two years of age and graduated in medicine from the former University College of Medicine, Richmond, in 1899, joining the Medical Society of Virginia that same year.

Resolutions on Death of Dr. Robert Glasgow.

The Virginia State Board of Medical Examiners, at its semi-annual meeting in December, adopted the following resolutions on the death of its president, Dr. Robert Glasgow:

Whereas, our dear friend and companion, Dr. Robert Glasgow, has passed to his reward, it seems fitting that we who knew and loved him should give expression in our sorrow to a few words of affection and appreciation.

Each member of this Board feels a peculiar and personal grief in his loss. As our presiding officer for so many years, he showed to all unfailing courtesy and fairness. He was gentle and lovable as a companion, firm as the everlasting hills in his stand for right and honest dealing. He was a Virginian of the old school, a beloved physician, who impressed those who knew him with his simplicity, wisdom and Christian dignity. In his death, the state has lost a good citizen and faithful official, the medical profession a loyal physician of the highest type and the Examining Board a capable and helpful adviser.

Your committee submits these few words and asks that they be recorded in the Minutes as the expression of our Board and that a copy be sent to Dr. Glasgow's family and published in the Journal of the State Medical Society.

(Signed)

I. C. HARRISON, *Chairman*.
H. U. STEPHENSON,
G. W. JOHNSON.

Dr. John William Waldron,

Grundy, Va., died October 23, 1927, of cerebral hemorrhage. Dr. Waldron was born in Tazewell County, Virginia, seventy-five years ago and attended the Louisville Medical College. He had been a member of the Medical Society of Virginia since 1904.

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PHYSIOLOGY OF THE KIDNEY.*

By CHAS. C. HASKELL, M. D., Richmond, Va.

We may well marvel at the ability of the kidneys to eliminate substances, often of a toxic nature, over long periods of time without suffering serious damage. No less remarkable is the adaptability of these organs,—how quickly they respond to the slightest tendency towards alteration in the hydrogen ion concentration of the blood plasma by a corresponding change in the reaction of the fluid which they excrete. They are far more than passive filters, as is evidenced by the power they possess to retain a crystalloid substance, glucose, and, simultaneously, allow the escape of another crystalloid, sodium chloride. It has been said that their activity is conditioned by alterations in the composition of the blood; if this is true, the alterations are often so slight as to prevent detection. Thus, sodium chloride is present in "normal" urine in considerable amount; in salt starvation, with no appreciable change in the chloride content of the plasma, this salt practically disappears from the urine. In view of the obvious complexity in the function of these organs, it is easy to understand the "difficulty of designing experiments upon the kidney, of which the results shall be unambiguous and crucial;" and we are prepared for the fact that, nearly a century after the formulation of the first clearly expressed theory to explain renal function, conflicting views are held by the leading investigators, and ignorance is frankly confessed regarding the intimate nature of the processes involved. Nevertheless, advances have been made, and, especially from studies carried out within the last few years, there is reason to believe that the outlook for final solution of the problem is far from discouraging.

In 1842, Bowman described the microscopic appearance of the glomerulus and tubule. From his morphological studies, he ascribed to the tubular epithelium the function of form-

ing urine by a process of secretion, similar to that occurring in various other glandular organs. He suggests, with some vagueness, that through the glomerular vessels water escapes, presumably, by filtration. Two years later, Ludwig suggested clearly that filtration of a complete urine through the capsular epithelium takes place, and that, by the known physico-chemical laws, this filtrate is concentrated in its passage down the tubules.

It was not until 1874 that the problem was attacked by experimental methods. In this year, Heidenhain reported that indigo-carmin, injected into the circulation, appeared to be secreted by the cells of the tubules. From his observations, he concluded that both glomerular and tubular epithelium actively secrete.

In the half century following Heidenhain's report, numerous papers dealing with renal function appeared, some authors supporting one, and some the other view as to the processes involved. In 1917, Cushny proposed the so-called "modern" theory. According to this theory, the glomeruli form a protein-free filtrate from the blood plasma; this filtrate, in its passage down the tubules, assumes the characteristics of bladder urine through "selective absorption" manifested by the tubular epithelium.

For convenience, the views regarding the nature of glomerular function may first be discussed in detail. From the structure of a renal glomerulus, it is obvious that the arrangement is well suited for filtration. A relatively large afferent vessel breaks up into a number of branches, from which the blood is conducted by a narrower efferent channel. The capillary tuft lies within the expanded end of the tubule, separated from the lumen of the latter by a single delicate layer of cells. The *filtration pressure* is the difference between intracapillary and intratubular pressure; consequently, an increase of the pressure in the capillaries or a fall of that in the tubules should increase the amount of filtration. The early experiments of Goll appeared to offer support

*Read as part of the symposium on Diseases of the Kidney, at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

to the view that the glomerular function was filtration; various procedures which raised arterial blood pressure caused an increased formation of urine. Against this, it was argued that there occurred not only an increase of intracapillary pressure but also of rate of flow through these vessels when the general arterial pressure was elevated; consequently, the heightened urine formation might result merely from more active secretion because of the larger blood supply.

Increased intracapillary pressure may be brought about not only by raising arterial pressure but also by retarding the flow through the efferent vessel. When the renal vein is compressed, with a consequent rise of intracapillary pressure, instead of the expected increase in urine formation, there occurs actually a decrease. This seemed to offer evidence against the filtration theory; but it has been explained satisfactorily in harmony with this theory. In the first place, complete occlusion of the renal vein leads to such an engorgement of the kidneys that the tubules are compressed, thus preventing the flow of fluid through them. Retardation of the flow of blood through the capillaries allows of a more complete filtering off of the fluid of the blood plasma; consequently, the non-filterable colloids become much concentrated. It has been demonstrated that these colloids are capable of exerting osmotic tension; under the conditions present in the glomerulus, this osmotic tension opposes filtration; consequently, the rising concentration of the colloids offers an adequate explanation for the diminished urine formation.

Occlusion of the renal artery leads to a prompt cessation in the production of urine: on re-establishing the blood flow, it has been stated, the kidneys do not immediately start functioning and the amount of urine may be permanently decreased. If the glomerular function is one of filtration merely, it has been argued, deprivation of blood, injuring the cells, should render them more permeable, and, consequently, should increase the amount of urine. The accuracy of the observation has been questioned; even if it does occur as claimed, it must be remembered that glomerular filtration, normally through living cells, is an entirely different process from the passage of fluid through a dead membrane, and injury to the cells may interfere just as well with filtration as with secretion.

In 1914, Richards and Drinker devised an apparatus by means of which it is possible to pump blood through the kidney of an experimental animal at a constant rate, regardless of changes in pressure. Employing this apparatus, it was subsequently shown that increase in pressure, with no increase in the rate of blood flow, sufficed to cause an increased amount of urine,—this evidence finally settling the much-discussed question and constituting an argument in favor of the view that the glomerular function is one of filtration.

Two arguments against the view that filtration occurs through the capsule have not been answered satisfactorily as yet. First, a rise of intratubular pressure should oppose filtration and lessen the amount of urine; on the contrary, it is found that, within limits, increasing intratubular pressure leads to an increased rate of urine formation. Cushny suggests that this is due to a reflex involving the vessels; evidence in support of this is wanting. Secondly, in testing blood plasma and capsular fluid obtained at the same time, Richards and his collaborators find that the latter may have a higher chloride content than the former. These latter observations do not convince Richards that secretion takes place through the capsule, but they "show the necessity of a further scrupulous investigation of the fashion in which a physical process may be modified when it takes place through the living walls of tubes of capillary size."

A vast amount of experimentation has been carried on in the attempt to determine the nature of tubular activities. Much of the early work may be discarded because of obvious technical errors or unjustified inferences. Thus, the mere presence of indigocarmine in the lumen and cells of the tubules may indicate absorption taking place or it may arise just as well from the escape of the dye out of the vessels into the tubular epithelium and subsequent secretion by these cells. The presence of urates, chlorides, or other salts in higher concentration in the tubules may indicate either secretion of these substances or absorption of water and other urinary constituents. Of more significance are the observations of Hirokawa, showing that the osmotic pressure of the renal cortex is remarkably constant and appreciably lower than that of the medulla, and of Nishi, in which it was found that in aglycosuric animals, sugar was absent from the medulla but present in the cortex.

In the past few years, definite proof has been secured that absorption occurs in the tubules. Wearn and Richards succeeded in obtaining sufficient glomerular fluid for chemical analysis; they found that it contained both sugar and chlorides at a time when the bladder urine was free of these substances. These experiments have been confirmed by White and Schmitt, and there now remains no question as to the ability of the tubular cells to abstract both chlorides and sugar from the glomerular fluid. That absorption is the sole function of the tubular cells is not by any means clear.

Marshall and his associates have demonstrated conclusively that after the intravenous injection of certain dyes, they appear in higher concentration in the tubular epithelium than elsewhere, and they offer arguments of practically a convincing nature in support of the view that their presence is due to abstraction from the blood by the tubular cells and not to absorption from the lumen. Accepting the evidence of Nash and Benedict as to the formation of ammonia by the kidney, we are compelled to explain the elimination of this substance in the urine as the result of secretory activity. While the dyes must be looked upon as foreign substances, ammonia is a normal urinary constituent, and its presence in the urine considered as evidence of a normal secretory process occurring somewhere in the kidney. It is difficult to escape the conclusion, therefore, that the tubular cells possess the power of secreting certain substances just as they are able to absorb others.

Accepting, with reservations, the view that the glomeruli form a protein-free filtrate from the blood plasma and that this fluid is altered in its passage down the tubules by the peculiar activities of the lining cells, the question still remains as to what influences are responsible for the quantitative changes in renal activity. Obviously, increase in either the rate of flow or in pressure of the blood in the glomerular capillaries should increase the amount of glomerular filtration. In a series of beautiful experiments, Richards and his associates have observed changes in intraglomerular pressure that may occur entirely independently of systemic alterations in blood-pressure and they have shown that many of the commonly used diuretics owe their influence to the ability to effect either an increase in the rate of flow through the capillaries or of the pressure within these vessels.

Most instructive were the observations on variations in the number of active glomeruli, as observed in the living kidney of the frog. During comparatively short periods of time, the vessels within a given tuft contracted, causing a disappearance of the glomerulus; while in another portion of the field, establishment of blood flow through previously contracted capillaries rendered visible and indicated beginning activity of another glomerulus. The addition of epinephrin in appropriate concentrations to the blood of the renal artery led to an enormous increase in the number of active glomeruli, which is explained by a relatively greater constrictor action of this drug on the efferent vessels than on the afferent. Caffeine, likewise, increased the number of active glomeruli, because of the power of this drug to cause greater relaxation of the afferent than of the efferent vessels. In short, through reference to alterations in capillary flow or pressure, Richards sees an adequate explanation for the quantitative changes in urine formation, either as occurring in nature or from the influence of diuretics. It is interesting to note that he finds in the hormone from the suprarenal glands an effective governor of renal activity; through it, urine formation may be increased or decreased, according to the effective concentration in the renal artery. On the other hand, Starling suggests that the hypophysis furnishes a chemical regulator of renal activity, as indicated in the well known influence of pituitary extract in relieving the polyuria of diabetes insipidus and also by certain experiments, in which he showed that the addition of pituitary extract to perfusion fluid passing through an excised kidney not only reduced the amount of urine formed but markedly increased the chloride content of this fluid. He is led to suggest that "the kidney is not an isolated organ, guided in its activity merely by the nervous system . . . and by the composition of the blood, but that it is played upon by chemical messengers . . . which reach it from different parts of the body . . . One of these hormones . . . would appear to be formed normally in the posterior lobe of the pituitary; but it is possible that other hormones, at present unknown, also act upon the kidney and determine the degree to which absorption and secretion of the different constituents of the urine are carried out by the several parts of the tubules."

DIAGNOSIS (LABORATORY AND CLINICAL) OF DISEASES OF THE KIDNEY.*

By F. C. RINKER, B. A., M. D., F. A. C. P., Norfolk, Va.

The kidney is subject to disease through the effects of remote and local foci of infections and through the results of constitutional disease and abuse.

Diseases which may affect one or both kidneys are numerous but the ones most frequently met with in medicine and surgery are:

1. Congenital deformities.
2. The nephritides.
3. The infections—(pyogenic or tubercular).
4. Tumors.
5. Calcareous deposits.
6. Cystic degeneration.
7. Circulatory disturbances.

In order to differentiate the various diseases of the kidney, and to diagnose a condition as renal rather than as some other of the maladies so frequently confused with kidney disease, it is necessary to utilize various methods of examination, for no one method will suffice. In studying kidney conditions it should be our aim, not merely to detect the disease as being renal, but we should attempt to find out the exact anatomical or physiological defect, and whether or not it is progressive.

In this section of the symposium, I shall attempt to outline the methods most commonly used in the diagnosis of kidney diseases, and to correlate the deductions to be drawn therefrom.

As in all conditions, the *history* of the case is of primary importance. Dyspnoea, edema of the feet, eye-lids or body, headaches (particularly morning headaches), or disturbances of vision, suggest the possibility of nephritis. Pain in the back or flank, referred to the lower abdominal quadrants or genitalia, with or without the presence of blood in the urine, leads to the suspicion of nephro-lithiasis or pyelo-nephrosis. Painless hematuria suggests tuberculosis, tumor or spontaneous rupture of a renal blood vessel. The latter is not infrequently met with and has been termed renal apoplexy.

Physical examination aids greatly in the diagnosis of renal disease. The kidney may be

palpated and found to be enlarged and tender, suggesting infections, tumor or stone. It may be freely movable, resulting in ptosis and causing ureteral kinks when the patient has endured physical strain while in the upright position. The breath may be uriniferous in odor and there may be associated with it orthopnoea, edema of the extremities, increase in blood pressure and the presence of exudate or hemorrhages in the retinal field, leading to the probable diagnosis of nephritis.

The urinary findings are of particular importance in two ways: first, in determining the presence of inflammatory or degenerative disease; and, second, to indicate the ability of the kidneys to perform their duties. The latter is a quantitative study and requires information as to the intake of foods, fluids and dyes.

In considering the urine, the presence or absence of albumin is possibly the most valuable determination to be arrived at. It may, however, be misleading. Albumin is usually present in nephritis. It is also present in conditions in which pus or blood is being excreted from the kidneys or bladder. On the other hand, albumin in the urine does not always spell pathology. Too frequently cases have been labeled "chronic nephritis" when they are orthostatic or postural albuminurias so often met with in young adults.

The finding of albumin in the urine, then, means nephritis, if the case is not excreting pus or blood, and if there are other signs and symptoms which prove it not to be orthostatic.

The microscopical examination of urinary sediment will reveal the presence or absence of casts, as found in nephritis; of blood, as found with stone, tumors, tuberculosis and renal apoplexy; and of pus which is found in cases of abscess or pyelitis.

We come now to the studies indicating the ability of the kidneys to perform their normal duties. This is known as *renal function*. The renal function tests are of value not alone with respect to diagnosis, but also for the study of renal efficiency of that portion of tissue which has remained untouched by disease, and also for the study of the ability of one kidney to care for the needs of the body should it be necessary to remove the other kidney.

Many tests have been suggested for the study of renal function, but only a few have stood the test of time and experimentation. Those

*Read as part of the symposium on Diseases of the Kidney at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

most widely used are: (1) the quantitative study of solids excreted, having knowledge of the amount of food ingested; (2) the study of the ability of one or both kidneys to eliminate a dye, injected into the body, in a given length of time; and (3) the two-hour renal test.

A study of the chemistry of the circulating blood is of decided value in the diagnosis of real disease. By the determination of urea nitrogen, non-protein nitrogen, uric acid, creatin, creatinin, and ammonia in the blood, we are able to estimate the ability of the kidneys to excrete the waste products of metabolism of both food-stuffs and body tissue. These substances are found to be increased in cases of nephritis, renal suppression, tumors and infections of the kidney. This method of study is also of great value in determining the progress or prognosis of renal cases, and in the preparation of kidney and bladder cases for operation.

Roentgen ray examinations of the kidney are of inestimable aid. By this aid, calculi are readily visualized, and by means of pneumoperitoneum the kidney itself is easily outlined on the X-ray plate. Also definite information regarding the size and shape of the renal pelvis may be gained by injecting the pelvis with an opaque substance and making X-ray photographs. This latter method frequently outlines irregular pelvis and distorted calices, so frequently found in infections, tuberculosis, tumors and congenital deformities.

Catheterization of the kidneys can be done with the aid of the *cystoscope*. By this means one is able to determine which kidney is hemorrhaging and which may be excreting pus. The renal function of an individual kidney can be obtained by the use of this method after the injection of phenolsulphonephthalein into the body.

Lastly, the *ophthalmoscope* should be included in the armamentarium of those who study diseases of the kidney. The finding of tortuous vessels or of hemorrhages and exudates in the retinal field frequently are among the first signs of an oncoming severe nephritis.

It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy.—George Horace Lorimer.

MEDICAL ASPECTS OF DISEASES OF THE KIDNEYS.*

By PHILIP S. SMITH, M. D., F. A. C. P., Abingdon, Va.
Geo. Ben Johnston Memorial Clinic.

From the view-point of medical management, kidney diseases are practically limited to nephritis, as other renal lesions are essentially urological or surgical.

In attempting a discussion of this subject, it is difficult to steer a sane course between the extremes of therapeutic nihilism and unwarranted enthusiasm in the advocacy of treatment. Until the factors concerned in the etiology, and a more accurate appreciation of the pathological changes in the kidneys and other related tissues, are known, we shall always feel that our management of nephritis is unsatisfactory. During the past decade the prevailing therapy has been influenced chiefly by the results of renal function tests and blood chemistry. This appears to be a commendable step in the evolution of kidney management; for it has resulted in a more scientific view-point and conservative treatment.

A plan of therapy based on the recognized pathological changes has its merits, but it is often impossible to diagnose accurately the type of kidney lesion. For these reasons, it is believed that the simple classification, acute and chronic nephritis, is sufficient for the purposes of this paper.

ACUTE NEPHRITIS.

This disease more frequently affects the young. The urinary findings and clinical picture may indicate either a primary glomerular (hemorrhagic) or tubular involvement. In either event our attention must be concentrated on the causative condition. As the result of the systematic inspection of school children, eradication of dental, tonsillar and accessory nasal sinus infections, and more general immunization against scarlet fever and diphtheria, it is believed that the incidence of acute nephritis will continue to show a gratifying decrease.

The patient with acute tonsillitis, or the scarlet fever victim thought convalescent, may develop a gross hematuria or edema. Such experiences, in part, may be avoided by urging rest in bed until urinalyses indicate that the kidney integrity is not involved.

*Read as a part of the symposium on Diseases of the Kidneys at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

The prognosis in uncomplicated acute nephritis is good, not only as regards recovery of the patient, but the ultimate repair of the renal lesion. Generally speaking, there is no treatment of this disease apart from the usual hygienic and dietary care of a patient with an acute infection. During the early febrile stage, a diet liquid in character and yet of sufficient caloric value is indicated. With the subsidence of fever and impaired digestion, solid foods of high carbohydrate content are given. If the illness be prolonged, the diet should include increasing amounts of protein to replace nitrogenous tissue waste. Ordinarily fluids can be given in quantities commensurate with the patient's comfort. If much edema occurs, water and other fluids should be curtailed and salt restricted to a minimum.

Drugs have little value in the treatment of acute nephritis, though the milder alkalies and spirits of nitrous ether have their advocates. Daily bowel movements are desirable through the administration of enemata or mild laxatives.

Too much emphasis cannot be placed upon the importance of maintenance of body warmth. Fresh air in the patient's room is important, but care should be taken to prevent chilling of the body surface during the daily bath or other nursing attention.

Uremia at times is seen in the more severe cases; its management will be discussed under chronic nephritis. This complication of acute nephritis, however, offers a better prognosis than when occurring in chronic renal lesions.

Where active focal infections are regarded as an etiological factor, they should be removed after the patient is convalescent from the acute illness. Exceptions to this statement are noted when recognizable abscesses develop; the suppurative middle ear, peritonsillar abscess, and other conditions attended by confined pus, should be excised and drained promptly.

A varying percentage of cases of acute nephritis improve only to reach a point where convalescence is retarded or marked by exacerbations of the inflammatory process. They usually merge into the type described as sub-acute parenchymatous nephritis in which the prognosis as regards complete recovery becomes doubtful. In this type the mistake is frequently made in not providing sufficient

food, including proteins, to maintain the patient's nutrition and nitrogen balance. Since anemia is an outstanding feature in these patients, tonics containing iron and arsenic are prescribed.

The management of the kidney complications of late pregnancy is not unlike that of acute nephritis. We have been impressed with the beneficial effects of magnesium sulphate intravenously in patients with threatened or existing eclampsia. Venesection is also helpful temporarily when the vascular tension is high. Those with pronounced symptoms of brain irritation may be quieted by a lumbar puncture. Unless there has been a pre-existing nephritis, the situation is saved in most of these patients by conservative delivery. The value of preventive measures in pregnant women is now generally recognized. Two lives at one and the same time are jeopardized by neglect, especially in the late weeks of pregnancy.

CHRONIC NEPHRITIS.

This phase of the subject is more difficult than the preceding. Most of us prefer to treat the patient with acute nephritis. We follow with enthusiasm the clinical and laboratory investigations of the chronic nephritic; once the diagnosis is established, almost unconsciously our ardor lessens as we contemplate the possibilities of therapy. The lack of some agent that will influence the renal disorder as insulin does the patient's metabolism in diabetes, or liver-feeding the unknown cause of pernicious anemia, is keenly felt. But confronted with a disease almost inevitable in advancing years, and an incidence apparently increasing in those of earlier life, the medical profession is challenged to renewed interest and effort.

A review of recent literature dealing with chronic nephritis, and especially its treatment, is illuminating in the theories advanced and equally confusing in the lack of uniformity in approach and conclusions. Rarely is the pathology limited to one particular part of the kidney structure. Until some more satisfactory and inclusive classification of chronic renal disorders is accepted, we must continue to consider the kidney as participating in pathologic changes which are oftentimes equally as marked in other tissues and organs. Such a concept permits us to refer to the patient as one with chronic nephritis and arterio-

sclerosis, myocarditis, or hypertension; another with chronic nephritis and nitrogen, or salt and fluid, retention. Thus our therapy will be directed to the patient's generally disordered physiology in which the kidney function is an important factor.

Here, again, management should begin with prevention and early recognition. It is interesting to speculate regarding the possible relationship between the high incidence of chronic nephritis in this country and our intensive habits of working and living. If the American people ever cultivate the practice of physical and mental relaxation, with longer and more frequent vacations, it is believed that these degenerative lesions will be deferred until a later period of life.

The rapidly increasing number of applicants for life insurance and those seeking periodic physical examinations have been instrumental in detecting incipient cases which frequently can be controlled by altered habits of diet and work, or by eradication of focal infections.

Some further general therapeutic considerations applicable to most types of chronic nephritis can be stated briefly.

Many nephritics are the victims of obesity and over-eating. In such cases reduction in the quantity and caloric value of their food is advisable. Sansum advocates a "basic diet" in chronic nephritis with or without hypertension; with the urine thus rendered neutral or alkaline, he reports improvement of symptoms and a reduction of blood pressure.

When vascular sclerosis, hypertension and cardiac disability are complicating factors, rest in bed over the week-ends enables many nephritics to carry on their activities.

Focal infections are generally regarded as contributing causes of chronic nephritis. Where no definite contra-indications exist they should be eradicated, though the results to be expected are palliative rather than curative.

Much experimental and clinical work has been done to prove that chronic renal changes frequently result from intestinal stasis. Admitting that convincing evidence is lacking, constipation should be controlled, preferably by hygienic measures.

SPECIAL PHASES OF CHRONIC NEPHRITIS.

Arterial Hypertension: This is especially a complication of interstitial nephritis. In moderate degree, like cardiac hypertrophy, it may

be regarded as a compensatory phenomenon. Where the vascular tension is excessive, the subcutaneous injections of guanidine-free liver extract may even yet prove of real value. Our experience with this agent is as yet too limited to make possible definite conclusions, though gratifying reduction of blood pressure and a corresponding relief of symptoms have been observed.

Nitroglycerin and the nitrites are usually helpful when really indicated by a dangerous degree of tension. In threatened or actual cardiac decompensation digitalis is the drug of choice.

Blood Nitrogen Retention: The practice in former years of restricting protein food to a minimum in every case of chronic nephritis is a heritage that should be abandoned since blood chemistry has become available. Many patients, as the result of such advice, suffered from insufficient protein allowance to maintain their nitrogen balance. Deprived of an adequate food intake, the metabolic processes call upon the body tissues to supply the necessary protein requirements. In patients with edema, diuresis and disappearance of edema may be observed following a more liberal protein diet. In others with marked long-standing albuminuria and blood plasma protein loss in the urine, the deficit can be restored only by an adequate protein allowance (nephrosis of Epstein). Unless the blood non-protein nitrogen or urea be increased, three-fourths gram of proteins per kilogram of the patient's body weight can safely be tried. In the event that subsequent blood determinations indicate increasing nitrogen retention, the protein allowance should be reduced.

Edema: Complicating either subacute or chronic nephritis, edema suggests a poor ultimate prognosis. If of slight degree it requires no special treatment. Excessive accumulations of fluid in the body tissues and cavities demand remedial efforts. The dropsy may be partly of cardiac origin, when the value of digitalis should not be overlooked.

The inability of the kidneys to eliminate water adequately necessitates limiting the patient's fluid intake. For a few days 800 c.c. can be given in twenty-four hours; if the edema disappears, increasing amounts up to 1500 c.c. may be permitted. Cushny states that an average of 100 liters of plasma filter through the normal glomeruli in twenty-four

hours and approximately 98.5 liters of this amount are re-absorbed by the tubules. If his estimate be correct, it is difficult to understand how a difference of a few hundred cubic centimeters of fluid intake can influence materially the patient's edema. Yet, clinical results following fluid restriction in this type of patient are oftentimes striking.

Sweating and catharsis are valuable aids in fluid elimination, but neither should be sufficiently vigorous to weaken the patient. Accumulations of fluid in the abdominal and pleural cavities should be removed by paracentesis if the patient's respiration and circulation are much embarrassed. Marked subcutaneous edema may require drainage by multiple incisions.

With water-logged tissues there is usually a corresponding retention of sodium chloride. Whether it is the sodium element alone, as some claim, or its combination with chlorine, with which the kidneys cannot cope, a salt-free diet is important in combating edema.

Most of the drugs listed as diuretics have little value in the treatment of chronic nephritis. Some cause sufficient kidney irritation to defeat the object for which they are administered. However, in edematous patients the effort should be made to increase the renal output in every reasonable way. For this purpose such drugs as theobromin-sodium-salicylate, caffeine and theocin are employed. Beginning with small doses, careful observation should be made of the fluid intake, urinary output, and the patient's weight to determine the effects of the drug. If diuresis results, it may be continued; otherwise, it should be stopped promptly.

Much work has been done recently in the treatment of edema with the salts of calcium in doses of 10 to 18 grams daily. The results have not been uniformly good, but cases with striking diuresis have been reported by Rockwood and Barrier. Keith and Barrier have since published gratifying results with ammonium chloride and novasurol in conjunction with a weighed, salt-poor nephritic diet. Diuresis and excretion of sodium chloride did not occur in some of their cases given ammonium chloride until novasurol 10% solution was administered intramuscularly or intravenously in doses of 0.5 to 2.5 c.c. In a personal communication, Dr. Bannick, of the same clinic,

writes that during the past year ammonium nitrate in doses of six grams daily has been used more frequently than ammonium chloride, as the latter drug is not as well tolerated and occasionally has induced clinical acidosis.

Andison states that novasurol and ammonium chloride are of even more value in cardiac edema and hepatic cirrhosis with ascites. In patients with nephritic edema and nitrogen retention the drugs are more likely to cause acidosis. Novasurol occasionally produces a diarrhoea, so purgatives should be given with caution at the same time.

Uremia: This complication of nephritis is usually a dramatic close of the patient's renal endurance. Confronted with it, the physician is conscious of the futility of treatment in the majority of cases. The exceptional recoveries, however, justify considerate and intensive therapeutic effort.

Elimination is the basis of treatment. Venesection with withdrawal of 400 to 800 c.c. of blood, followed by a blood transfusion if the patient is anemic, is oftentimes helpful. A 10 per cent glucose solution intravenously furnishes a readily available carbohydrate and has diuretic properties. A hypertonic salt solution has been shown to relieve brain edema and may accomplish the purpose of a lumbar puncture. Catharsis and sweating with hot baths or packs are indicated as a means of ridding the patient of toxic products.

Repeated convulsions, otherwise uncontrollable, may require morphia or the inhalation of chloroform, though both of these agents are regarded as contributing to renal insufficiency.

In thus reviewing cursorily the medical management of nephritis no effort has been made to cover the available and voluminous literature dealing with the subject. Rather is it hoped that conservatism in treatment, based on recognizable clinical and laboratory data in each particular case, has been emphasized. "Enthusiasm for the new is not infrequently permitted to obscure the merits of that which has preceded it." While our results are often most discouraging, the recently acquired knowledge of the physiologic and pathologic background of nephritis has been helpful in eliminating much unnecessary treatment and prolonging the useful working period of many victims of inflammatory and degenerative renal disorders.

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SURGICAL ASPECT OF DISEASES OF THE KIDNEY.*

By J. M. ROBINSON, M. D., Danville, Va.

It is eminently impossible to cover in one paper of reasonable length all the conditions of the kidney which may be included under the above caption as it is equally as impossible to treat the kidney from a surgical standpoint without encroaching upon other fields—pathology and physiology forming the ground work, consideration of which is as necessary as the foundation of a house is to the superstructure.

The advance in surgery of the genito-urinary system, which has been rapid and sound in the past decade, has been due not so much to the improvement in the technic of operating as in the painstaking care in arriving at a correct diagnosis and in an estimation of the ability of the patient himself to withstand the shock which is peculiarly present in this type of case. This, coupled with our recognition of the vital necessity of a preparation of the patient both from a mental and physical standpoint to a point of maximum resistance, which one can not describe but which is recognized through experience alone, has brought genito-urinary surgery well abreast of the operative field.

I can not stress too strongly at this point one form of preparation which, too often neglected, has impressed me more and more with each succeeding year until now consideration of the mental attitude of the patient occupies a most prominent place in our pre-operative school. As this is a hobby with me I will not linger on it here but merely mention it in passing "lest we forget".

The anatomical structure of the kidney, the physiology involved, and the function it is called upon to subserve, make us wonder why this organ is not diseased more frequently than it is.

Let us now consider the surgical aspect of the kidney or, to be more specific, those conditions of the kidney for which surgical measures are necessary to secure their amelioration or relief.

A brief resumé of the anatomical position of the kidneys with their relationship to important contiguous structures, solely to refresh the memory of some of us who may have become a little rusty, I hope will not be amiss.

The kidneys are both extra-peritoneal, lying behind the peritoneum which covers their anterior surfaces only; they are located in the upper back part of the abdomen, one on either side of the vertebral column with the upper pole opposite the twelfth dorsal and extending down to the third lumbar vertebra.

They are covered with a thin fibrous capsule which is closely adherent to the organ and surrounded by a bed of loose fat and connective tissue. Important points to remember are that the descending duodenum lies immediately in front of the right kidney and can be easily caught in the pedicle clamp if care is not exercised in its application and that the diaphragm and pleura lie between the posterior upper surface of the kidney and the eleventh and twelfth ribs, the upper half of the kidney being normally above the twelfth rib. The right kidney as you know occupies a position one inch lower than the left, due to the presence of the liver, it is therefore more accessible than the left, more frequently out of its bed as well as being more often the object of operative measures.

It can readily be seen from this that the kidneys can not be called easily accessible organs and especially is this so in subjects who are heavily muscled, have an over-abundance of fat, or who have a narrow costo-iliac space.

There are two methods of approach to the kidney—one the lumbar route with its many varieties of incisions, and the other the abdominal route, either trans- or extra-peritoneal. And here again the necessity for an accurate diagnosis is most important in order that the route best suited for the case may be employed. In the great majority of cases the lumbar route is used as there is a comparatively small percentage of surgical kidneys which can not be handled through this incision. Before making the incision, four landmarks should be located, namely, the tip of the twelfth rib, the border of the erector spinae muscle, the crest of the ilium and the

*Read as part of the symposium on Diseases of the Kidney at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

anterior superior spine. The incision should begin just back of the tip of the twelfth rib, carried downward almost parallel with the erector spinae muscle, then forward parallel with and one inch from the crest of the ilium, and as far forward as necessary, the length depending upon the thickness of the abdominal wall and the extent of the operation. This also allows the upper part of the ureter to be brought under inspection where it can be examined and treated as the condition demands. I will not go into a detailed description of the operation as you are doubtless thoroughly familiar with the procedure.

In the abdominal operation the incision is made about one-half to one inch from the median line and extends from the costal border to within two or three inches of the pubes; a second supplementary incision may be used here, beginning about two inches from the upper end of the longitudinal incision and passing transversely outward at right angles just beneath the costal margin for a distance of four or five inches. This T-shaped incision is most useful in the presence of large tumors of the kidney and is the incision of choice when malignancy is present or suspected.

To those men who are devoting a greater part of their time and energy to kidney surgery, the following passage from Hinman in his article on Nephrectomy is most appealing: "There is a certain charm about surgery of the kidney. It exercises the imagination, uses the intellect, requires judgment, and benefits by skill and experience sufficiently to make it fascinating. Interest is diversified. Problems that often require a high degree of intelligent solution arise throughout the course of almost every case. The problem of diagnosis comes first with its highly technical methods of examination, in the use and proper interpretation of which both training and experience are required. Then arises the problem of preparation for surgery, such as catheter drainage or nephrostomy, and the problem of delay against early operation. Finally the problem of choosing the best surgical attack is a very interesting and vital one . . . The surgeon chooses for the patient the conservative or radical way, and the result in time proves the correctness or error of his judgment. The satisfaction of exact diagnosis and curative treatment is no greater in any other field of surgery".

In reviewing the literature on this subject one can not help but note the enthusiasm which permeates these articles and share with them the feeling that another epoch in surgical history has been made and success has been the just reward for their untiring, intelligent and brilliant efforts.

In approaching the kidney from a surgical standpoint one must, like a good general, plan his campaign, marshal his forces and be prepared to meet any emergency. Before going far in your determination of what to do, I wish especially to call your attention to the necessity of establishing the presence or absence of a second kidney. Statistical reports show that one kidney is congenitally absent in one out of every 2,400 subjects and one surgeon reports this condition found in two out of 500 cases. The presence of a large kidney on one side with no readily assignable cause should be sufficient in itself to arouse suspicion and call for an exploration on the other side.

The removal of a lone kidney has occurred more than once, much to the discomfiture of the surgeon, to say nothing of the "annoyance" to the patient. I feel, however, that the above admonition is unnecessary as it is inconceivable that in this day any surgeon would operate on a kidney without first having the routine functional, cystoscopic, X-ray, and such like tests made. In no one branch of surgery is a thorough knowledge of existing conditions so important as in surgery of the genito-urinary system where the margin of safety is always small and even an apparently trivial error of omission may be sufficient to decide the issue against the patient.

According to Lower, the essential character of the kidney makes the following the outstanding considerations which must be met in considering any surgical procedures upon them:

1. If one organ is impaired, to determine the functional capacity of the other.
2. If both organs are impaired, to determine whether or not the impairment of one is of a sufficiently minor degree to allow it to undertake the whole functional load.
3. If both are impaired, to determine whether or not the impairment of both is so slight that first one and then the other may be repaired.

He further states that no operation on the kidney should be considered a minor opera-

tion. Even pyelotomy for removal of a stone, unless the stone lies with comparative freedom entirely within the pelvis, may be followed by injury of the calices and adjacent kidney tissue to such an extent as to diminish seriously the functional capacity of that kidney.

In the selection of surgical conditions of the kidney for your special consideration, I have been guided in my choice by those in which recent advances in their treatment have brought them prominently to the attention of our profession.

The following subjects I will of necessity handle very briefly, namely: Tumors, polycystic kidney, stones, hydronephrosis, tubercular infections, nephropexy and nephritis.

TUMORS: Under this heading we find a large number of malignant growths grouped under the term hypernephroma. Young has very rightly called attention to the fact that due to the uncertainty of their histogenesis these tumors should be more properly called nephroma as no proof has been brought forward to warrant the assumption that they spring from adrenal tissue as the former term would seem to imply. Practically all tumors of the kidney are malignant and should demand nephrectomy. If malignancy is suspected or if the tumor is of considerable size, the abdominal route should be the approach of choice. This is especially so in the former condition in which case it is necessary to secure and ligate the vascular pedicle as early as feasible as it is now known that the renal veins are often involved and should be divided as far from the tumor as possible. In this operation the incision must be free and the exposure wide as your success depends upon a complete removal of the fatty capsule, the glands and perhaps the adrenal. The keynote of success in surgery of malignant conditions is early and radical operation and so it should be here, and yet we see cases in which the first symptom noted by the patient appeared only a few weeks before examination and, notwithstanding this, we find a mass which is beyond surgical measures; while on the other hand we see cases in which the symptoms had existed over a period of several years that have been operated on and apparently cured.

POLYCYSTIC KIDNEY: Here again the kidney surgeon is called upon to use his wits to the utmost. It is still a debatable question

with the concensus of opinion favoring medical rather than surgical treatment. It is generally agreed that a polycystic kidney should not be removed except in the face of a rapidly growing tumor with free bleeding, infection and suppuration or tuberculosis; and even then you may expect in the too near future a re-appearance of the symptoms on the other side, as the disease is in the majority of cases bilateral. Surgical evacuation of the superficial cysts may be justifiable in selected cases.

STONE IN THE KIDNEY: The operations for stone in the kidney are pyelolithotomy, nephrolithotomy and nephrectomy. In this condition the operation will depend upon the location, size and shape of the stones, which are usually located in the pelvis or calices, rarely in the cortex. The kidney is exposed through a free lumbar opening and brought into the wound where a thorough examination by palpation may be made of its pelvis, ureter and kidney proper in order to determine if possible the above facts.

If the stone is located in the pelvis and its size is such as to preclude its removal by pyelotomy without doing too great damage to the kidney substance, a nephrotomy should be done. The kidney should be opened by an incision a little behind the convex border in the line of Broedel, or, as it is called by some, in the non-vascular zone of Hyrtl, as it is here that the terminal arteries of the anterior and posterior group intermingle and are smallest in size and fewest in number. The opening should be just large enough to admit an exploring finger which is passed into the pelvis, the stone located and extracted with forceps.

If in addition to the stone infection is present and if the other kidney has been examined and found to be healthy and normal, nephrectomy would be considered conservative surgery. If infection is present and nephrectomy is contra-indicated, the pelvis must be drained. Horsley describes a method for this in order to avoid placing a drain into the pelvis direct which as a rule results in a fistula of long standing. He passes a pair of blunt haemostats through the pelvic opening, pushes them up through the substance of the kidney towards Broedel's line where they are shoved through the cortex; a soft rubber catheter is caught in the bite of the forceps and the tip of the catheter is drawn through into the pelvis of the kidney; it is fixed to the capsule and brought outside, the wound in the pelvis being

closed. According to Eisendrath, quite large stones of the branching type can be removed by an opening into the kidney pelvis even though it may be necessary to extend this into the cortical substance, with much less damage to the kidney than a nephro-lithotomy. As a matter of fact bisecting the kidney should not be the operation of choice but rather the one of necessity.

HYDRONEPHROSISS Hinman's researches a few years back have served to present this subject in an entirely new light. We had been accustomed to think that removal of the obstruction in the ureter was quite sufficient to restore the function of the affected kidney. He has shown, however, that in a large percentage of these cases the opposite kidney has undergone hypertrophy and has taken over practically the entire load and, even though the obstruction is corrected, the kidney does not resume its function except in a minor degree and remains as a large sac which, if infection is present, will in time endanger the good kidney. It would seem, therefore, that nephrectomy would be the safest procedure here.

According to Lower in his article on "Surgery of the Kidney," from which I have already quoted at some length, the dangers of nephrotomy when one kidney is functioning properly are such as to question the justification for this operation. These dangers he states are as follows: Persistent hemorrhage, failure of the wound to close with the consequent leaving of a constantly infected urinary fistula, permanent damage to the kidney structure by contracting scar tissue, diminished resistance of the kidney operated upon, the increased danger of the recurrence of pathological conditions whether stone, infection or tumor, and finally, the inevitable effect of a prolonged suppuration of one kidney upon its fellow.

Young's conclusions are that whenever the opposite kidney is normal and the hydronephrosis is of considerable size a nephrectomy is indicated. If the hydronephrosis is early and uninfected, a plastic should be done when possible. If the opposite kidney is damaged or absent, a plastic should be done before resorting to a nephrostomy. In the plastic operation he favors the simple uretero-pyelo-plasty and cites four recent cases in three of which the results were perfect. This opera-

tion is described in detail in his "Practice of Urology".

TUBERCULAR INFECTION OF THE KIDNEY: Tuberculosis may develop in any portion of the kidney and as a rule this organ is the one first affected in the genito-urinary system. In the beginning it is nearly always unilateral and may remain so for months before appearing in the opposite kidney.

The diagnosis of renal tuberculosis having been made, what then? A review of the literature on this subject shows a remarkable unanimity of opinion ranging from nephrectomy, provided only one kidney is infected, to removal of the worst kidney even though there is a marked involvement of the other. The answer will probably be found between these extremes.

Israel asserts that there is no non-operative cure for renal tuberculosis and Wildbolz that it is a disease that is rarely healed spontaneously. It is true that some patients may live on in comparative comfort for ten or fifteen years or more but this is probably explained by the fact that the infection is well localized and of low virulence or, as Braasch states, may have developed an immunity from a multiplicity of lesions. Any procedure short of primary nephrectomy will afford at best only temporary relief.

In 611 cases in the Mayo Clinic in which a complete follow-up was obtained after nephrectomy, 59 per cent were apparently cured after an average of four years, 31 per cent were dead from all causes, and in 10 per cent there was still evidence of some tuberculosis in the genito-urinary tract.

In comparison with this Rafin states that ninety-one out of 168 patients not operated on were dead, the majority within the first three years after the onset of symptoms. It is probable that the vast majority of the remaining seventy-seven was suffering the distressing symptoms of tuberculosis of the urinary tract if not actually dying from it.

Early operation in renal tuberculosis when the infection is limited to one kidney or when there is only slight involvement of the second kidney should be attended by a mortality so low as to be practically nil.

Where the ureter is involved, the extent of involvement should be the deciding factor in its removal. A slight enlargement or nodulation in its upper part will be arrested or will

clear up entirely after removal of the kidney and stoppage of the passage of urine over it. As a matter of fact lesions lower down in the ureter and in the bladder show a remarkable tendency to get well after the diseased kidney has been removed.

Young states that "the injection of pure carbolic acid into the ureter is valuable in sterilizing the ureter, destroying its epithelium and promoting an early resorption of inflammatory changes."

Bidgood states that in a review of eighty-nine cases of nephrectomy for tuberculosis, the wound broke down in sixteen after operation. In a further study of these sixteen cases he found that no feature in the pre-operative examination or history was related to this breakdown but that the lesion present in the kidney was of prime importance. He concluded that the cases most likely to break down were those with acute tuberculosis, especially pyonephrosis and those in which tuberculous pus was spilled in the wound. We have all seen cases of a persistent sinus after nephrectomy where non-absorbable ligatures were used on the stump in which it was difficult to determine the cause of the sinus especially when there was a tendency towards tuberculosis.

There is one other point I would like to mention before leaving this very important subject and that is to stress the need of care and gentleness in handling the kidney as to traumatize it is to invite complications such as embolism, infection of the wound and tubercular involvement of distant organs.

NEPHROPEXY: Mention of this operation is not to discuss it at length but merely to say that it should not be performed except in the presence of positive indications for it, such as mobility sufficient to cause the kidney to be damaged, twists or kinks in the ureter, or symptoms indicating undue traction on the pedicle.

The many and varied symptoms, mostly of nervous origin, which have in the past been attributed to movable kidney I believe, with careful investigation, can be placed in their proper category.

ACUTE AND CHRONIC NEPHRITIS: The surgical handling of these conditions has blossomed forth in many well written and interesting articles but whether or not any real progress has been made is still open to ques-

tion. I can do no better than to summarize briefly these operations according to Young's classification which is as follows:

Acute Toxic Nephritis: Decapsulation and decapsulation with nephrotomy and drainage have been recommended but beyond a temporary increase in the quantity of urine nothing has been accomplished.

Acute Bacterial Nephritis: In this condition operation is indicated in the unilateral cases. Where there is fever, pyuria, hematuria and localized pain indicating a tense engorged kidney, splitting the capsule will relieve pain and is productive of good results.

Acute Brights: Pousson, in a study of the statistics in 116 cases, states that of twenty-four operated on in the early stages, eight are dead and sixteen living, four of whom showed no improvement. In ninety-two who were operated on three months or more after onset, twenty-five are dead and sixty-seven living. The operations done were decapsulation and nephrotomy.

Chronic Brights: Decapsulation as brought forward by Edabohls in 1898 has not met with the success in this condition which would establish it as an effective operation. In a resumé Young says that decapsulation has been proposed on two bases:

1. To allow new vascular connections with the kidney to form.
2. To relieve internal pressure of the kidney.

The first named object is probably not accomplished and the second can be sought only when a kidney is congested or oedematous.

In properly selected cases, pain is relieved and the flow of urine is increased; as to the ultimate result, however, little can be said.

I regret that time will not allow a more complete exposition of the subjects upon which we have just touched or permit us to go into other phases of kidney problems which are of equal interest and importance, such as the formation of hematogenous abscesses in the kidney secondary to distant foci, nephralgia, extraction of stones through the ureter by recent improved methods, as well as the question of diet and general management in conjunction with surgical treatment. These questions, however, will probably be brought out in the discussion of this symposium and in a much more attractive and forceful manner than can be done by the essayist.

In summing up the question of surgery of the kidney, Bugbee says, "Conservatism in deciding on operation, the proper preparation of the patient for operation, conservation of renal tissue, nephrotomy preliminary to nephrectomy in the presence of serious surgical risk, the free employment of transfusion, and intelligent after-care, will go far toward placing renal surgery in its proper place as one of the most interesting, accurate and satisfactory branches of surgery."

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DISCUSSION OF PAPERS BY DRS. HASKELL, RINKER, SMITH AND ROBINSON.

DR. JOSEPH F. GEISINGER,* *Richmond*.—The Society doubtless realizes without any suggestion from me that it has just heard an admirable symposium upon a subject touching more or less intimately every department of medicine and surgery. I am personally grateful to the essayists for the comprehensive sweep of this symposium and for the soundness of the information it conveys.

It would be interesting to attempt now an equally comprehensive discussion, but the field covered is too vast and the time allotted far too short. The anatomy and physiology of the renal apparatus, for instance, though splendidly exhibited by Dr. Haskell, I am compelled to pass by with the simple remark that we have happily emerged from the era when we were disposed to relegate these fundamentals to the class-room and have now come to realize quite fully that clinical medicine has its roots here and must always display the most intimate regard for them. Much of our knowledge of the manner in which the kidneys accomplish their functions is unfortunately still speculative, but as these processes become better understood it is possible that some of the bedside problems associated with them will likewise become unfolded.

The diagnostic measures at the disposal of the attendant confronted with a renal problem have been outlined in detail by Dr. Rinker and need no further comment. The combination of clinical judgment, laboratory data, roentgenology, and cystoscopy provide us with an armamentarium which in the general average of cases renders diagnosis in this field at least as precise as it is in any other branch of medicine.

The medical aspects of renal disorders, which is the subject of the excellent paper by Dr. Smith, I do not consider myself competent to discuss. It

may be permissible, however, to call attention to the possibility of the existence of certain types, or at least one type, of nephritis which is not described in any text and which is yet not uncommonly met under certain circumstances. This type of nephritis is not frank in its expression, is not constant in its manifestations, is not associated with edema or hypertension, exhibits no casts in the urine, but may present a fixed low specific gravity, marked retention of nitrogenous products, possibly gross hematuria, and often a steady downhill progress which nothing seems competent to arrest. I have invited the consideration of my medical colleagues at the Stuart Circle Hospital to this tricky renal situation as well as to the general riddle of uremia to which it often leads.

The surgical aspects of renal disease concern me more particularly and, if time permitted, I should enjoy a more extended exchange of views at this point of the discussion. Fortunately, the soundness of the conclusions expressed by Dr. Robinson leaves no occasion for any elaborate comment. Our experiences at Stuart Circle place us in substantial agreement with everything he has said. We are perhaps somewhat less disposed to consider operation in bilateral renal tuberculosis, which we have come to regard as an out-and-out non-surgical condition unless one kidney, with all its function, is completely destroyed and yet behaving as an active focus. Where nephrectomy is performed in unilateral cases, we prefer complete wound closure without drainage and make no attempt at ureterectomy which, to be efficient, must be complete, and hence is usually impossible or unwise.

The futility of conservatism in the presence of large hydronephrosis, where the total renal function has been assumed by the other side; the removal of polycystic disease from the surgical field, except under most unusual circumstances; the realization of the advantages of the transperitoneal approach to tumors of the kidney, large or small, all appeal to our best judgment. The nephrotomy drainage which he associates with the name of Horsley is an admirable procedure which is usually ignored but which, if more frequently employed in infected calculus kidneys, would unquestionably, I believe, result in a definite reduction of the present depressing incidence of stone recurrence. The caution against the indiscriminate use of nephropexy is timely, but, lest the pendulum swing too far, should be accompanied by a reminder that now and then in a well-selected case, this operation becomes one of the most brilliant in surgery. The difficulty lies mainly in the selection. We are at present giving some particular thought to the question of decapsulation in nephritis, concerning the desirability of which the evidence is extremely conflicting and confusing. In the typical nephritis resulting from poisoning with bichloride of mercury we are becoming disposed for certain reasons to believe that the dreary results of decapsulation might perhaps be improved if the operation were performed immediately and not, as usually happens, after several days of other treatment, during which irreparable damage to renal tissue has occurred.

Finally, may I commend especially and most heartily the more general aspects of renal surgery as expressed by Dr. Robinson. He refers to a "hobby" of his own and here touches one of mine, which I have previously discussed in a manner before the Society, but to which, if I may, I shall turn again by way of conclusion of this fragmentary and cursory discussion:

*Editor's Note: The opening of the discussion of the symposium on "Diseases of the Kidney" was assigned by the Program Committee to Dr. Geisinger who was furnished with copies of the papers in advance of the meeting.

1. Renal surgery is but rarely of an emergency character and, except in a very occasional instance, will permit complete pre-operative study by all the means now at the command of the urologist.

2. This preliminary investigation should embrace the supposedly sound side as well as the side under attack, and it should be recognized as a cardinal principle in this field that no major surgery upon one kidney should be undertaken until the integrity of the other organ is soundly established. Unexpected pathology, operative accidents, or extreme technical difficulties may require nephrectomy where some simpler procedure had been planned; or the degree of operative traumatism, where nephrectomy is not done, may cause temporary suppression of function in the kidney involved. The burden of sustaining life in the patient is then thrown upon the opposite organ and its actual existence or its freedom from disease cannot be left to hypothesis.

3. The comprehensive study here pictured will not only disclose the condition of the sound side, the nature of the processes at work in the diseased side, and the most appropriate measures for the relief of these latter, but will also not infrequently suggest preliminary treatment over a longer or shorter period, during which period essential changes may occur, making less surgery sufficient, or no surgery necessary, or more surgery possible. The lesson taught by the preliminary phase of prostatic surgery should be applied more consistently to the upper tract and in certain cases, perhaps in many, will be found productive of some astonishing and most gratifying results.

4. The immense value of renal tissue and its amazing recuperative powers should ever be in the forethought of the urologic surgeon, leading him away from the greater radicalism of the past toward the greater conservatism which is steadily growing in the present and will be further emphasized in the future. Certain conditions—unilateral tuberculosis, large hydronephrosis, tumor, calculi of some types, pyonephrosis—demand nephrectomy with no uncertainty. In various other conditions, however, less drastic measures are often efficient and not infrequently surgery may be totally replaced by other methods of attack. One may then enjoy the peculiarly stimulating experience of not only relieving the patient of his disability, but of restoring to him an organ which may at some future date represent to him the difference between life and death. It would be interesting and instructive to illustrate these considerations in some detail but the limits of the present discussion make it necessary to reserve this for some subsequent communication.

5. Approached in this attitude, radical where necessary, constructive and conservative where possible, guided by careful preliminary study, and fortified by equally careful preparatory and post-operative treatment, renal surgery is unsurpassed in any branch of medicine for excellence and permanence of results.

6. The age distinction which separates infancy from maturity in this field is artificial, unreasonable, and unjust, and, in closing, one cannot refrain from a final word in behalf of these little sufferers, who are subject to the same disorders as their elders, but who, in spite of their well-known tolerance of cystoscopic manipulations, are still so seldom permitted to have the benefit of the precision of diagnosis and treatment, surgical or other-

wise, which is accorded to the adult as a matter of course.

DR. C. C. HASKELL, *Richmond*, closing discussion: There are one or two points that I should like to comment on. The first of these is in connection with the interesting experiments performed by Dr. Richards, of Philadelphia, and the inferences he drew therefrom. He suspected that if the glomerular vessels were to remain contracted for a considerable time, the resulting oxygen deprivation would injure them. He tested this by injecting a solution of epinephrin intravenously into cats, finding that albumin subsequently appeared in the urine; this appearing to offer confirmation of the view that vascular constriction would injure the glomeruli if sufficiently prolonged. Since it has been claimed by some that there is an increased secretion of epinephrin as a result of emotional stress, Dr. Richards next tried the influence of emotions, such as anger or fear, finding that they, likewise, lead to the appearance of albumin in the urine of cats. The inference is that certain cases of nephritis occurring in man may owe their production to unwholesome emotional states, such as worry; the mechanism involved being an over-production of epinephrin and prolonged constriction of the glomerular vessels.

We must recognize that Dr. Smith is not alone in having obtained good results from the intravenous injection of calcium chloride in some cases of nephritis. However, this drug should be used with caution intravenously—with the caution I am sure Dr. Smith always exercises. We are in an era of enthusiasm for intravenous medication, but anyone having an opportunity to observe the effects of the intravenous injection of even hypertonic sodium chloride solution will realize that the procedure is not devoid of danger. Only recently, I had the opportunity to learn of a case where only a portion of the recommended dose of calcium chloride solution injected intravenously into a child resulted in prompt death of the patient. Understand, I am not condemning the use of calcium chloride or intravenous medication in selected cases, but it should always be borne in mind that there is a constant element of danger.

DR. P. S. SMITH, *Abingdon*, closing the discussion: Answering Dr. Haskell, I think probably he misunderstood me in saying that I use calcium salts intravenously in the treatment of nephritis, for I have never done so. We have used calcium chloride intravenously in patients with gall-bladder disease associated with jaundice, preparatory to operation. We have also given magnesium sulphate in the vein in cases of eclampsia with good results. I agree, however, with Dr. Haskell, that any agent employed intravenously should be used with caution.

THE POLICY OF THE STATE BOARD OF HEALTH IN REGARD TO TUBERCULOSIS.*

By ENNION G. WILLIAMS, M. D., *Richmond, Va.*
State Health Commissioner.

On previous occasions I have addressed our Society on matters that might be regarded as debatable spheres of public health activities, twilight zones. I shall today present for your consideration the subject of tuberculosis and

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

the State's duty in regard to the tuberculous so far as it has been regarded by the State Department of Health and by the General Assembly of Virginia.

At the outset I may say that virtually all governments, certainly all States of the Union and provinces of Canada, have considered tuberculosis as a disease which should receive the attention of the public health authorities. With few exceptions, every State has sanatoria for the care and the cure of tuberculosis.

Our first biennial appropriation gave \$20,000 for general health work and \$20,000 for tuberculosis. Since that time the tuberculosis appropriations have mounted until they reached the peak in 1923-24, a total of \$398,648. In that year we received for public health work \$194,174. Since that time this discrepancy has lessened and for the current year our tuberculosis appropriations exceed our general health appropriations by about \$163,000.

It would seem from these figures that Virginia has tried to deal generously with its tuberculous; and one of the most serious problems which the State Health Department has been forced to consider is—how to spend this money wisely and to the best advantage alike for the victims of tuberculosis and the State as a whole.

Briefly, I shall place before you the steps by which we arrived at our system of charges. This was not the first or most important question for us to solve, but it has much to do with the main thought of this paper.

By appropriating money the State openly recognizes its interest in tuberculosis. It took the ground that there was a distinct benefit to all the people when tuberculosis was arrested and the number of its victims lessened. This policy put tuberculosis in a class separate from all other diseases, although it might be said with equal truth that the elimination or the cure of any ailment adds to the wealth and the happiness of the State.

At the outset we knew that an appropriation of \$20,000, or ten times \$20,000 would not enable us to look after the tuberculosis patients in Virginia. There were as late as 1915 more than 4,000 deaths from tuberculosis annually in Virginia, and, roughly estimating, this meant that there were more than 40,000 Virginians suffering from tuberculosis. We had, therefore, to use discretion in selecting our patients, and we had to consider what part the

State should pay and what part should be paid by the patient.

As a matter of fact, I advocated a fee based upon the ability of the patients to pay; but a majority of the board decided that at Catawba, our first sanatorium, there should be a fixed fee for all patients, one-half the cost to be defrayed by the State and the other half by the patient or the community from which the patient came.

Years later when Blue Ridge Sanatorium was established a graduated scale of charges was tried; the financial condition of the patient was taken into consideration and those able to pay little were charged little. This plan soon was found to be entirely impracticable. The officials of the sanatorium could not possibly decide on the financial status of the patient; and, unfortunately, the word of the patient could not always be taken at face value. It was found to be almost equally impossible to decide fairly upon the information given by acquaintances or friends of the patient. They either were partial or lacked true knowledge of the patient's condition. To have employed investigators to ascertain the financial status of the patients would probably cost as much as it would cost the State to give free care.

I may quote to you an experience which shows the difficulty in determining the financial status of patients. Several years ago the State Department of Health gave free Pasteur treatments to those unable to pay. One day two men, who had been bitten by a mad dog, came to the office for treatment. They had letters from the mayor and the health officer of the city in which they lived, stating that they were unable to pay for treatment. When they were told that they would have to wait until the next day for us to get the material from Washington, they became indignant and went immediately to a private Pasteur Institute where each immediately and without protest paid \$75.00 for the treatment.

So, I frankly confess that my original judgment was wrong. The experience of eighteen years has demonstrated that the fixed fee is the more desirable policy; and at the State Sanatoria for white people the costs are split evenly between the State and the patient; while at the sanatorium for colored people, the State pays a slightly higher proportion.

States do not consider indigency. So far as I know, there is nowhere a State poor house

or similar institution. The care of the indigent has always been a matter of local concern. There are county poor houses, or county homes, or county farms; and cities have similar institutions. It will probably be urged by those in favor of the State assuming the charge of indigent tuberculosis that there is a difference between the indigent who is not suffering from a communicable disease and the indigent who is apt to be a menace to his neighbors. That is perfectly true; but it will be recalled that the State pays half the cost of maintaining the sanatorium patient and this might fairly be regarded as the measure of the State's interest as compared with private or local interest.

Therefore, the State, through the General Assembly, took the position that where a patient is unable to pay for treatment at a sanatorium, the community in which the patient resides should bear a share of the expense, and so there was passed an act authorizing the cities and counties to appropriate money for the support of patients unable to pay. Some cities and counties now exercise this right and send patients to the tuberculosis sanatoria.

Viewed from an economic standpoint, it is unfortunate that a large majority of tuberculous patients whose expenses are partly borne by communities are generally far advanced cases; and every far advanced case at our sanatoria is necessarily an additional cost in the operation of the institutions. This is, of course, too obvious to need any detailed explanation. You doctors know how much more it costs to care for bed patients than it does to care for those who can attend and do attend regularly the dining room.

Fortunately, our problem today is not as serious as it was in 1908. We have no vital statistics for that year, but I feel safe in saying that there is today in Virginia less than one-half the tuberculosis there was twenty years ago. To give some exact figures, the tuberculosis death total for 1915 was 4,003; the 1926 mortality was 2,673 and, taking into consideration the increased population, this makes a decline of more than 40 per cent in the death rate from tuberculosis. Nevertheless, we may set the figure that we have today at more than 20,000 cases of tuberculosis in Virginia.

Obviously, we can not hospitalize all, even if we were to take only for the briefest period those who require a minimum of instruction.

We now have beds for more than six hundred white patients and for about one hundred and fifty Negroes. We believe that we should use these beds, so far as it is humanly possible to use them, for the care of incipient or moderately advanced cases, patients who will stay at the sanatoria for a limited length of time, who will be benefited by the treatment and restored to active life, and who will be able to protect others and to teach other tuberculous patients how to care for themselves and how to protect the community.

Nevertheless, we find ourselves at odds with many people, with many doctors. We find that there are many of our leading doctors who think that the State should take charge of advanced cases. It is an economic problem. Can the State afford to do so?

It is now costing Virginia about \$300,000 a year to maintain its sanatoria and about \$70,000 a year to maintain tuberculosis clinics. Taking the death total of 1926 as a basis, 2,673, it is safe to say that there are considerably more than 5,000 far advanced cases in Virginia.

We have a method of approximating our tuberculosis data without taking the arbitrary statement that there are ten cases to every death. We maintain a well-equipped, carefully organized clinic service which holds in sparsely settled sections occasional clinics, that is, clinics which have no definite date every year, but are held as frequently as the size of our force will permit. In more thickly settled sections, especially in counties where there are centers of population, we hold periodic clinics, usually four times a year. These are strictly diagnostic clinics. They are case-finding clinics and it has been our experience that not only a considerable amount of unsuspected tuberculosis has been disclosed at these examinations but that a far greater amount of unsuspected and untreated diseases has been disclosed.

While the nominal, and the main object of these clinics is to investigate and determine tuberculosis, still we have found that the advice of our clinician, based on a thorough examination, has resulted in sending to doctors throughout the country innumerable cases which would have developed seriously and which, now under treatment, are on the road to recovery.

We examined last year 8,818 patients. Of these, only 1,824 showed pulmonary tubercu-

losis, but 6,507 showed sickness of some sort or other requiring a doctor's care, yet only 791 were at the time under the care of a physician.

Our clinics are, as I have said, strictly diagnostic; even for tuberculosis we correspond with the physician and not with the patient; and no cure of any sort was recommended to any one of the 6,507 cases of illness, but each case was advised to see his family physician. Our only advice, which in any sense might be regarded as tending to the curative, is that we do advise sanatorium treatment to those who we think would be benefited by that sort of treatment. We do, however, distribute tuberculosis literature, which is available from any source.

Our clinicians are strictly debarred from private practice and they are not permitted to receive a fee when they go into consultation. We do not hold clinics in opposition to the wishes of the local doctors. If we start such a service and we find that there is such opposition, we withdraw; and our nurses are careful always in visiting the local doctors in advance of the clinic and inviting them to the clinic; so, with this record of case findings, we feel safe in saying there are at least 5,000 far advanced cases in Virginia.

Now, it will be seen that this is not a matter simply of maintenance. It will probably cost not less than \$1,500 per bed at a well equipped sanatorium. I am inclined to think that the cost will run nearer to \$2,000. Far advanced cases require facilities that will enable sleeping indoors during rigorous weather; and we can not build houses suitable for such cases unless we use durable weather-proof material, such as brick or concrete. Assuming that the cost would be only \$1,500 per bed, to provide for 5,000 far advanced cases would require an expenditure of \$7,500,000. It might be said that such a sum would never be required, that all advanced cases would not want hospitalization, that some would rather stay home; but you can never tell how far a policy will extend once you embark upon it; and I feel sure that to provide facilities for the care of advanced cases, even those able to pay their own expenses, would involve money expenditures far beyond the resources of Virginia.

What are we to do? Are we to pursue the policy which we have followed, to pay partic-

ular attention to the patient who can be restored to active life, or are we to turn our sanatoria into segregation homes, where the far advanced tuberculous patient shall stay until he dies? I do not believe that the latter plan is consistent with public health ideas. Conceding that the far advanced case may be a menace to the health of others, I believe that the far advanced case is considerably less of a menace than the moderately advanced case which circulates freely among the members of the community in which he lives.

Frankly, I do not know under whose direction such segregation homes should properly be placed. If they ever should be established and placed with the health department, we would do our best to manage them properly, but it seems to me to be largely a welfare matter; and, if indigence is combined with sickness, I think it would be more a matter of local concern than of State concern.

I am giving to you doctors the benefit of my nineteen years' experience as health commissioner, and during eighteen of these years we have been operating one or more sanatoria. We believe that instead of there being a just criticism of our policy in endeavoring to exclude far advanced cases, we are really open to blame for having accepted such a large number of cases of moderately and far advanced. In extenuation, we may say that frequently it is hard to draw the line and to catalogue absolutely the condition of the patient; yet we certainly have at each of the sanatoria more far advanced than we should have.

The sanatoria justify themselves as public health activities when they serve as schools for teaching patients how to prevent the spread of tuberculosis; they justify themselves as economic investments when they return to active life people who otherwise would be charges on their families or their communities; but I fail to see how they justify themselves with our limited funds when they serve only as segregation homes. Yet, a number of Virginia doctors, men of high standing, wise men, take issue with this and think that it is the bounden duty of the State to take care of its helpless and hopeless tuberculous. Charity and humanity naturally incline us all to that view, but is such an undertaking strictly public health work until the State has far more money for this work than appears at the present time?

DISCUSSION.

DR. C. L. HARRELL, *Norfolk*: I understand Dr. Williams selected me to open the discussion on his paper because I would disagree with him. I think Dr. Williams and his co-workers are to be congratulated on the great strides made in the fight against tuberculosis in the last few years. Well do I remember when Catawba Sanatorium was opened, with a very few patients; now the three state sanatoria together handle from 1,000 to 1,200 patients each year. These cases when they return home help to educate others. I have often made the statement that I believe the sanatoria in this state do as much good along educational lines as any institution of learning in the state.

There are one or two slight criticisms I wish to make of the present tuberculosis program. First, not more than 25% of the patients that I refer to the sanatoria consult me again, until they relapse too far for help. The only reason I can give for this, they learn just enough to think they can treat themselves without the aid of a physician, and that all their ills are due to tuberculosis.

Another is the state clinics. I have done some work in these clinics. The cases are not studied close enough, because the doctors have too many patients to see. I have attempted to examine as many as forty-seven cases on a hot July day. After you have listened to about twenty-five chests it is almost impossible to tell an abnormal from a normal sound. I think twenty-five a day should be the limit. The cases should also be confined to those who are not able to pay. It is not fair to the local physician for the state nurses to go about in the rural districts and drum up patients, regardless of their ability to pay, in order to make a good showing at the clinic. I think it better to confine your efforts to those who really need attention.

The juvenile type is handled only to a small extent in this state. The children's pavilion at Blue Ridge can accommodate about forty children, and these cases are given expert care. Richmond has a preventorium, where it cares for a few children during the summer months. Norfolk has a preventorium that runs in conjunction with the tuberculosis clinic. It provides for twenty-five or thirty children for two months during the summer. Dr. Grandy tells me that only one case has developed active tuberculosis to his knowledge that has been taken care of at this preventorium since it has been in operation, which is about seventeen years. But think of the large number of children throughout the state that get no attention at all.

I heartily agree with Dr. Williams that the state should not be expected to provide beds and take care of the far advanced cases of tuberculosis. In the first place, a real sick patient should not be taken too far away from home for treatment; secondly, it would be too expensive. But some provision should be made near the homes to provide for the far advanced cases, either by city or county, or the two combined. The far advanced case should be taken out of the home. Dr. Williams says there are about 5,000 active cases in the state at present. Miss Randolph says there are about 5,000 children in contact with these cases. It is from this group of contact cases that we get our future active cases of tuberculosis. We should do all in our power to separate the child from the active case.

Illinois has a law that no child under sixteen years of age shall live in a house where there is a known active case of tuberculosis. Chicago has

tried to enforce that law. Chicago had a record March 1, 1927, that showed 2,680 cases, with a positive sputum. The health department reports that only twenty-eight cases under sixteen years of age were actually in contact with any of this number. What Chicago has done on a grand scale, Virginia should attempt to do on a small scale.

I wish to congratulate Dr. Williams and his co-workers on the good work they are doing, but I am hoping for still greater improvement in the near future.

DR. CHARLES R. GRANDY, *Norfolk*: I have heard with a great deal of pleasure what Dr. Williams and Dr. Harrell have had to say in regard to the sanatoria. Having been actively engaged in tuberculosis work for many years, possibly longer than either of the gentlemen who have spoken, I believe we can go even further than Dr. Williams goes. I think that the care of the far advanced case does not lie with the state, but with the subdivisions of the state. In making a check of the amount of money spent by the different cities of the state, I find that the cities of the state were appropriating only about \$100,000 a year for the direct care of the tuberculous, and \$80,000 of that came from Richmond. In other words, most of the cities of the state were passing the buck, to use the American expression, to the state to take care of their tuberculous cases. They were not giving them proper care and were letting them infect the people around them. They had to pay a mill tax and wanted the state to do all the work. I am one of the people who is glad that the mill tax was taken off, because it will not give the cities an opportunity to pass all the burden on to the State.

The sanatoria do splendid work in the majority of cases. Let us look at our own pockets when we go away from home and consider what we had to pay. The white sanatorium patient pays one dollar. Let us compare that with what we pay when we go to a hotel. I frequently tell patients when they ask me where to go, whether to go to Catawba or, let us say for comparison, to Asheville, that at Catawba they pay a dollar a day, and—while they do not get a private bath—they get everything they need and get it for a dollar, and at Asheville they have to pay five dollars a day and up. In the white sanatoria our accommodations and buildings compare very favorably with the big sanatoria. They are very much better than some of the big sanatoria in the North, yet we get the service at this very nominal charge. I think the doctors of the state should be congratulated upon the service they are getting from the sanatoria.

In conclusion, the clinic in Norfolk, which I have been running for a number of years, has at the different sanatoria, between fifteen and twenty cases all the time. We are spending around \$2,500 a year on the patients' board. Some patients are able to pay; some have to be taken care of by different organizations. We think it is money well expended and wish we had more. I hope the medical profession will not blame the State of Virginia for not giving the patients more, because I believe the State of Virginia is doing everything possible for the patients. If you make treatment absolutely free and can take care of only a limited number of patients, you will get in many far advanced cases that last forever, and they will keep out the cases that might be benefited.

DR. WILLIAMS, closing the discussion: I am glad to hear the criticisms of Dr. Harrell and Dr. Grandy. We are always glad to hear from the doctors of

the state, even if we do not agree with what they say. I should like to add also that we should be glad to have any doctor in the State of Virginia come to the sanatoria and spend two or three days as our guest, because I believe it is good for the doctors to come there and see the problem and become really acquainted with what is being done.

CAESAREAN SECTION.*

By J. HUNTER PEAK, M. D., Louisville, Ky.

Since the dawn of human history, or since life came into the world, there is no question but many women have lost their lives on account of conditions we recognize today, and which, if known then, and the way of handling them as we know now, the women would not have died from those causes.

Back in the time of the Pharaohs, today, and within the last few years, there have been found many bas-relief works or pictures of women undergoing the operation now known as Caesarean section. We do not know, from any authentic source, whether these women were living or dead when the operation was undertaken.

It has been shown that many, many centuries before the time of Christ, in women who died at or near the end of utero-gestation, the abdomen was opened for the purpose of removing the child in the hope that it might live. About 715 B. C. Pompilius codified the Roman laws and afterward they were called "lex regia." In these laws it was decreed and made obligatory on the part of the public that in all women who died near the end of gestation the child should be delivered in that way. There were two reasons for this: First, that the child might live and be of benefit to the community in which it would be reared; second, if the child did not live, it and the mother could be given a separate funeral.

The name "Caesarean" a great many people have thought comes from "Caesar." That Julius Caesar was born that way I expect there is no question, but the old idea that his mother consented to give her life in order that there might be an heir to the throne is possibly a mistake, because letters have been found written many years later to Julia, his mother, so she must have lived after he was born. Caesar was born about one hundred years before Christ, and some have thought the word Caesarean was derived from this operation, but this is not true, because Caesars

lived before that time, there were other rulers by the same name before Julius Caesar came into the world. It is more likely that the word Caesarean comes from the Latin, *caedere* (i. e., to cut), and this means was used to deliver women, not only those where the child was possibly living, but also those who had been dead long enough so that the child was also dead.

The first period of Caesarean section and the development of this work extended from the earliest time, of which there is little known, downward to about the time of Christ, then to the fifteenth or beginning of the sixteenth century, to provide separate burial for mother and child, or for preservation of the child if the operation could be performed sufficiently early after the mother's death.

After the birth of Julius Caesar, according to history, the first living child to be born by Caesarean section and the mother to survive, was in Switzerland, the operation being performed by Jacob Nufer, a Swiss butcher, upon his own wife. That was about the beginning of the sixteenth century. After all the midwives had attempted delivery without success, and after several barber-surgeons had been called in consultation and could not affect delivery, the woman was told there was no further hope. However, the husband told her that he would not let her die, that he would open her abdomen and deliver the child. This was successfully accomplished, and we are told in history that she bore four or five children normally afterward.

From that time until 1876, nearly all the women subjected to Caesarean section died, and, when we consider the crude manner in which the work was done, we can understand the reason for the mortality. That was before the days of asepsis and antisepsis. The uterus was simply opened and the child and placenta extracted. The uterus was then allowed to recede into the abdominal cavity and the external incision was closed. There were two reasons why the woman might die: First, the lochia escaped into the abdominal cavity, infection occurred, and fatality was almost inevitable; or, if the woman survived, she was thereafter an invalid as the result of the infection; second, death supervened as the result of severe hemorrhage.

It was Porro, in 1876, who recognized these two factors as the cause of so many deaths. The

*Read by Dr. Owen M. Wheeler in absence of Dr. Peak (invited guest) before Southwestern Virginia Medical Society, in Bristol, Va., September 22-23, 1927.

surgical technique was not then so well developed as it is now and has been since the advent of bacteriology, and yet Porro recognized the dangers and attempted to forestall them by emptying and amputating the uterus and fixing the stump in the abdominal wall. For this purpose he used what is now known as a figure-of-eight suture placed around two steel pins, transfixing the stump in the abdominal wound. Before that time the mortality from Caesarean section was at least 90 per cent, and subsequently about 52 per cent of the women died. Many of those who survived were in a serious condition because of the long continued infection following the procedure.

Strange to say, during the same year (1876) or the year following, Sanger conceived the idea that the best way was not to perform the Porro operation, which entailed fixing the uterine stump in the abdominal wall, but to suture the uterine incision, replace the uterus in the cavity, and close the abdominal wall just as in any other operation. Credit is due Sanger for the present perfected technique of Caesarean section. He may legitimately be called the father of the present surgical technique of the operation.

There are four periods in the history of the Caesarean section: The first period was where women were delivered in this manner for the purpose of saving the child if possible, or giving it a separate funeral if dead, there being no hope of saving the life of the mother. That period extended from the earliest times to about 1500 A. D. The second period was from 1500 to 1876. During that time very few of the women recovered following the operation, and it was never undertaken except as a *dernier* resort in an attempt to save the life of the child as well as the mother.

It was stated by Budin, of Paris, and by Spaeth, of Vienna, also by Murphy, of London, and authorities in all the other great centers of medicine and surgery in Europe, that not a single patient survived the operation of Caesarean section from 1778 to 1876, a period of ninety-eight years. However, during that time, Harris, of New York, had collected sixteen cases with a mortality of 56 per cent. Subsequent to the Sanger operation and its perfected technique, Harris collected 1606 cases with a mortality of only 4 per cent;

in other words, 96 per cent of the patients recovered.

The period from 1500 to 1876 was what might be termed the experimental stage of the operation, which was considered very dangerous until the technique was improved and simplified by Porro and Sanger. From that time (1876) until 1907 may be considered the third period, or the period of perfection of the technique, and where the lives of nearly all the patients were saved. With the present perfection of the technical details of the procedure, Caesarean section is about as safe as any other abdominal operation, everything else being equal.

From 1907 until the present time there have been a few operators who have advocated and practiced Caesarean section without entering the abdominal cavity, that is by the extra-peritoneal method. It is claimed this plan is more advantageous than ordinary Caesarean section in the presence of frank infection, or in cases where it is known infection might have been easily acquired and probably exists, and where delivery otherwise than by operative means is impossible. I understand the extra-peritoneal method is now practiced by DeLee and several others in this country in cases where infection has already occurred. I wish to say that I doubt very much whether, under our present methods of protecting the abdominal cavity from extension of infection, any such operation is ever justifiable. The procedure requires too much time, it is too tedious, and it is unsatisfactory, because the peritoneum is often torn, adjacent structures, especially the urinary bladder, are injured, and disastrous results sometimes follow. At all events, the extra-peritoneal method should never be attempted by any surgeon who has not thoroughly mastered the technique of the procedure. It is infinitely more difficult and entails greater danger to both mother and child than the ordinary Caesarean section.

It is not my intention to describe the technical details of Caesarean section,—the moving picture will do that,—but it may be interesting to briefly mention some of the recognized indications for the operation.

It has always been known that the pelvis of woman may be subject to faulty development. When a woman is normally developed, when her pelvis and everything else is normal, we know that she has very little trouble

in giving birth to her child through the natural channel; but sometimes there is faulty development of the pelvis, the most common type being what is known as infantile pelvis.

I have performed sixty-five Caesarean sections. The fifty-fourth operation was performed last April and will presently be shown in moving picture, and since then ten other patients have been similarly operated upon. The case to be illustrated by the moving picture tonight belongs to that class known as infantile pelvis, the antero-posterior diameter being only two inches and the lateral diameter not more than four inches, making it impossible to deliver the woman by version or any other method than Caesarean section. The patient was otherwise perfectly normal and healthy. This child was the third that I had delivered for the woman in the same way, and she and all three children are living.

Any disease or deformity causing marked change in the contour or size of the pelvis may be a direct indication for Caesarean section. The so-called Nagele's pelvis is an example of this type. In such cases the deformity is caused by fusion of the sacrum with the ilium, the result of arrested development, giving the appearance of only half a pelvis. Tuberculosis, osteoma, cancer and other diseases may cause pelvic deformity and bring about the necessity for Caesarean section. I have seen two cases in which Nagele's pelvis was present, and recall several others where pelvic deformity was due to tumors.

About five years ago I presented before our county society a paper on the indications for Caesarean section, and reported forty-four cases, ten or fifteen of the patients being present with their children. I do not now recall how many different indications for the operation were represented by the group of cases presented, but there were many.

In the presence of cervical neoplasms, particularly advanced carcinoma, I believe Caesarean section is indicated. Malignant disease involving the vaginal outlet and the rectum, on account of the great amount of neoplastic tissue, may be an indication. I have seen one case, the only one of the kind I have observed or of which record can be found, where a tumor in the anterior vaginal wall filled the entire pelvis and prevented normal delivery. A small tumor was noticed when the first child was born but the patient did not have

it removed. She again became pregnant and this time was sent to the hospital and prepared for delivery by Caesarean section because of obstruction from the tumor. While on the table with the operation started, labor pains became so violent that the child's head, pressing downward against the tumor, caused it to rupture. The contents had much the appearance of a dermoid cyst, with very foul odor and other evidences of the presence of considerable purulent material. Caesarean section had to be completed and the child lived but the mother died. This case was not in my personal practice, but I happened to be present at the operation.

Any tumor in the anterior uterine wall, such as a fibromyoma, situated low between the parturient canal and the urinary bladder, may so fill the space as to obstruct descent of the child's head, and thus constitute an indication for Caesarean section. I operated in one case where the woman had previously given birth to fourteen children in the normal way. When pregnant with the fifteenth child it was found she had a uterine fibromyoma which prevented the child from making any presentation whatsoever, except a cross presentation, and normal delivery was impossible. Caesarean section was performed, the child lived, and the woman left the hospital on the ninth day after operation. This patient stated that if she ever had any more children she wanted them delivered by operation, that she did not wish to bear further children in the natural way, since she had seen how easy it was to be delivered by Caesarean section.

Ovarian tumors may be so situated as to obstruct delivery, because of their great development, or possibly by adhesions to other pelvic viscera. Such tumors sometimes develop almost entirely in the downward direction instead of upward, and may so fill the pelvis as to effectively prevent delivery.

Sometimes anterior or ventral fixation of the uterus may be the cause of severe dystocia, on account of distortion of the normal uterine relations, so that when labor begins Caesarean section may be found necessary.

Extensive cervical and perineal lacerations in previous labors, especially where the rectum is involved, even though successfully repaired at the time, constitute a valid indication for Caesarean section. The same may also be said of scar tissue of extensive nature

in the vaginal walls. Under such conditions, if the woman is delivered in the normal way in subsequent pregnancies the extensive scar tissue is certain to be separated; the injury may extend into the uterus and the woman succumb from infection. Moreover, ruptured scar tissue rarely heals, and that of itself would be a constant source of danger.

Advanced pulmonary tuberculosis, where the woman is so exhausted from the effects of the disease that she cannot withstand normal labor, may be an indication. Many women with tuberculosis have lived for years after delivery by Caesarean section, whereas their lives might have been lost had they been delivered in the normal manner.

Serious cardiac disease, such as myocarditis, valvular lesions where there is no attempt at compensation, etc., may be a valid indication. In the presence of serious renal lesions Caesarean section may prevent extension of the disease and prolong the life of the woman for many years.

In persistent occipito-posterior positions, where the high forceps operation would be necessary to effect delivery, and especially where efforts at labor have already exhausted the woman and complete uterine inertia has supervened, Caesarean section is indicated. Crossed or shoulder presentation, particularly where one arm is protruding, must also be considered as an indication.

Puerperal eclampsia is sometimes an important indication for Caesarean section. I do not mean to say, however, that the operation is indicated in every case of eclampsia. Take a case, for instance, where a woman, rather advanced in years, is pregnant with her first child, where possibly the viability of the child is certain if given a chance to be born, but where the mother's condition is very serious, where the cervix is elongated with vaginal outlet small, where the cervix is difficult to dilate, and where conditions are such that it would be impossible to do anything of advantage unless done quickly, Caesarean section in my opinion offers the best opportunity for both the mother and the child. Eclampsia seldom develops until after the seventh month of gestation, and in such cases prompt Caesarean section may be the means of saving mother and child.

Placenta previa, especially of the centralis type, is in itself in many instances an indica-

tion for Caesarean section. I have operated upon several patients of this type and have never lost a child that was living when the operation was started, and only one of the mothers succumbed. This patient was a Mrs. W., who had central implantation of the placenta and when first seen by me was so exhausted from hemorrhage that I could see nothing to be done except take her to the hospital and complete delivery as quickly as possible. The child was already dead, the cord was prolapsed, and an arm protruded through the placenta into the outside world. I had many times performed version and delivered women in that way. This we know is always dangerous to the child, but in this case the child was already dead. Under the circumstances I believed possibly I could deliver this woman by version, and while she was in the hospital I attempted it, but the hemorrhage was so great that it could not be sufficiently controlled to save her life. I believe in that case Caesarean section was the better plan. It is relatively a simple operation, can be performed very quickly, and, everything else being equal, it is practically devoid of danger. This particular patient died; the child was already dead when I was first called, it being the only fatality in fifty-five cases. All the other mothers and children are living and well today.

It is thought by many physicians that it is extremely hazardous to deliver a woman by Caesarean section where forceps have been previously used. If forceps have been tried under strict aseptic precautions with the patient in the hospital,—and I think no woman should be delivered with forceps except in a well-equipped hospital,—I do not believe it would be hazardous to deliver her at any time afterward by Caesarean section. However, it is recognized that the dangers are increased where a great many vaginal examinations have been previously made, and yet the woman whose moving picture you will see presently had been in labor for thirty-six hours before I saw her the first time and I expect one hundred vaginal examinations had been made by those who attended her and attempted to complete delivery, without any special precautions whatever being taken. Complete uterine inertia had supervened when I first saw the woman, and examination disclosed the fact that she could not be delivered in the

normal way. She was placed in the hospital and allowed to rest until the next morning when Cesarean section was performed. Despite the unfavorable conditions, due to repeated examinations and attempts at delivery, she had no trouble following the operation,—no fever, no infection, no sepsis. Under any circumstances where the conditions demand the high forceps operation, I believe Cesarean section is much safer. High forceps application often causes serious injury to the soft parts of the mother, and there is always danger of fatal injury to the child.

I have already detailed much of the history of the woman whose picture is to be shown. She was perfectly healthy in every respect, but had an infantile pelvis. She was anxious to have a family and was willing to bear children even after she knew they could be delivered only by Cesarean section. She was a very intelligent and deeply religious woman. The first operation upon her has been sufficiently described.

The second time she was admitted to the hospital a day or two before the time when labor was expected. No vaginal examination was made and none was necessary until the advent of signs of beginning labor. When the cervix was found quite well dilated she was taken to the operating room and again delivered by Cesarean section. No trouble developed following the first operation, even though perfect asepsis was probably not attained, but after the second operation, when we were certain of aseptic technique throughout, a stitch abscess developed. However, this caused little trouble and the patient was dismissed well on the fifteenth day after operation.

Before the third operation the woman was kept in the hospital under proper care for some time, her physical condition was carefully watched, her urine was frequently examined with negative results, and during the entire time she complained of nothing. She had no pain and expressed herself as feeling perfectly well. Strange as it may seem, at the third operation the uterus was found firmly attached to the anterior abdominal wall by omental adhesions, there being nothing between the uterus and the abdominal wall except the omentum, to which both the uterus and the abdominal wall were attached. It was, therefore, impossible to effect delivery

of the child by Cesarean section without dissecting the omentum from the surface of the uterus. It was thought unwise to separate the adhesions between the omentum and the abdominal wall because of the extensive area covered and the large blood vessels in the omentum which, if divided, might have caused hemorrhage and death. The omentum was accordingly left attached to the abdominal wall just as it had been since the second operation, making an incision through the omentum and separating it from the uterus in order to complete the operation. The woman had complained of no symptoms during the time these adhesions had existed, so evidently they did no harm. To have dissected the omentum from the abdominal wall would have required considerable time and would probably have increased the danger of the operation. After dissecting the omentum from the uterus the latter was incised and the baby and placenta delivered. The uterine wall was badly torn during the procedure as the work had to be done hurriedly. The placenta was attached anteriorly and had to be incised before the child could be delivered.

In this instance a modified Porro operation would have been necessary because of the torn condition of the uterus, but fortunately both the woman and her husband, over their signatures, had requested me to do something that would prevent further pregnancies, as they already had three children and all had been delivered by Cesarean section. A supravaginal amputation of the uterus was performed, the uterine stump allowed to recede into the abdominal cavity, and closure of the various structures effected in the usual way.

The child was living and cried lustily within four minutes after being delivered. The convalescence of the mother was without untoward incident and she left the hospital with her baby on the fourteenth day after operation.

I might mention that in the after-care of patients subjected to Cesarean section an obstetrical binder is applied, just as after normal labor, and the abdominal wall is further protected by adhesive plaster first. Pituitrin is administered every four hours for the first few days to prevent gaseous distention.

The moving picture now being shown was taken at the Deaconess Hospital with the con-

sent of the patient and her husband. The various steps of the operation are fairly well illustrated as will be observed by those of you who can see the picture. What is apparently a serious hemorrhage during delivery of the child is principally from the placenta and little attention was given to it. The woman lost very little blood during the operation.

In closing, I wish to say that just thirteen days after the operation the patient witnessed herself being operated upon when the picture was shown at the hospital for my approval.

811-812 *Stark's Building.*

ORAL SEPSIS FROM THE STANDPOINT OF INTERNAL MEDICINE.*

By THOMAS P. SPRUNT, M. D., Baltimore, Md.

THE DOCTRINE OF FOCAL INFECTIONS

Before taking up the relationship of mouth infections to the general health, let us first consider the idea of focal infections in general, of which oral sepsis is one in particular. The doctrine of focal infections as we are considering it now is comparatively new. The importance of portals of entry or gateways of infection has been kept in mind as long as bacterial diseases have been studied. Only fifteen or sixteen years ago Billings and his co-workers emphasized this doctrine—that bacteria may lurk in certain localized areas, set up inflammation there, may cause little or no local disturbance, but are capable of bringing about diseased states in different parts of the body by the intermittent seeding off of bacteria into the blood stream or by the absorption of toxins from such an area into the blood stream. It is a fascinating doctrine. In theory it has supplied an hypothesis concerning the direct cause of many pathological states the etiology of which was formerly quite obscure. In practice it has been even more dramatic, tending to change our position in the therapeutics of chronic diseases from one approaching therapeutic nihilism to one full of buoyancy, activity and optimism.

You are, perhaps, familiar with this Osler anecdote. When a young physician asked Dr. Osler how he should handle a patient with chronic arthritis, Dr. Osler is said to have replied, "When you see a chronic arthritic come in at the front door, climb the back fence".

Do we climb the back fence today? We do not. We approach the problem with zest and earnestness, searching the patient fore and aft, from gums to prostate, for possible foci of infection. We then outline a plan for the eradication of such foci, for the building up of his general health, and for the further treatment by physiotherapy, thermotherapy, vaccine therapy, pharmacotherapy, and other suitable forms of therapy at our disposal. Do we obtain better results than we might expect by following the Oslerian suggestion? We believe that we do although it might be difficult to convince the intelligent skeptic if he insisted upon rigid scientific proof; at least it might be difficult to convince him that the removal of the focal infections was the cause of the improvement noted, for it would seem an undoubted fact that the doctrine of focal infections has served as a tremendous stimulus to other forms of therapy that are usually regarded as adjuncts to the method by which the assumed cause has been removed. The optimism resulting from this stimulus has been helpful. Most physicians are therapeutic optimists and it is well to remember that therapeutic optimism is helpful to the patient as well as to the physician.

ABUSES OF THE DOCTRINE

The focal infection doctrine is a rational one. It is an appealing one. Those of us who work in a clinic where it is the daily thought and practice to search carefully for possible foci of infection are apt to become placid believers in this type of therapeutic endeavor and to forget that there are in the profession aggressive doubters. It is always fortunate that there are aggressive doubters and it seems quite probable that the number of these doubters will increase, for the more radical among us are carrying this doctrine to unwarranted extremes. The patient with arterial hypertension and with arteriosclerosis has his tonsils removed and several teeth extracted. If his blood pressure does not go down and signs of marked improvement are not apparent he is told that the focus has not been found and the search continues. Perhaps he is sent to some other clinic in the hope that some one else may be able to find the focus of infection that is the cause of his disease. Patients have been led to believe, or perversely believe of their own accord, that the extraction of an infected tooth will cure practically any ill, like

*Read by invitation before a joint meeting of the Richmond Academy of Medicine and the Richmond Dental Society, November 8, 1927.

the wonderful potions of the Arabian Nights. Certain enthusiasts in the profession have advocated the resection of a great part of the large intestine in the treatment of schizophrenia and other mental disturbances. Such extreme measures tend to bring our doctrine into disfavor, to increase the list of aggressive doubters and to inspire the jokesmiths that notice the medical profession.

BREADTH OF VIEW IN CONSIDERING CAUSES OF DISEASE

Such tremendous emphasis upon focal infections or upon any other one factor would seem to show a lack of appreciation or of the proper evaluation of the causes of disease in general or indeed of the causes of any biological phenomenon. We have all been taught to think of predisposing causes and of exciting causes, though in the years following the advent of bacteriology medicine paid but scant attention to the former. We have been taught, too, that while practically all the so-called exciting or direct causes of disease are in our environment, the predisposing causes may be due either to inherited or to acquired, that is environmental, factors. Medicine is being more and more influenced by fundamental biological thought. Biologists, during the past few decades, have been particularly interested in the heredity and in the development of the individual. They show that hereditary factors are of considerable importance in the production of many characters that are of consequence in disease. They indicate, for example, that the duration of life is strongly influenced by heredity and hence one must keep such factors in mind in considering the chronic diseases and disabilities that aid in bringing life to an end. What a complicated list of possibilities there are to consider in determining why a man is what he is at the age, say, of fifty! Much depends upon who were his father and his mother; upon what particular spermatozoon happened to encounter what particular ovum (for the differences may be great); upon the manner of the union of the chromosomes of those two organisms; of the environmental circumstances surrounding the developing ovum or zygote; the infant's entrance into the world; the numerous physical, chemical, psychic and social environmental influences playing upon the infant, upon the child, upon the adolescent and upon the adult man. With so many possible factors to be

considered why lay all the emphasis upon one! The constitutional factors may be the determining ones in the incidence of an infection, in the localization perhaps of the infection, and in the course of the infectious process either with or without the removal of the primary focus. You would enjoy reading, in this connection, the little book by Dr. Raymond Pearl entitled "The Biology of Death." In that book he likens the animal constitution to an eight day clock. It is wound up to run for eight days. Some of the poor ones may stop after two, or three or four days. The good ones run for eight days, the best ones for ten days or longer provided no extraneous agents like sand get into the works. We believe that oral sepsis and other focal infections may act as sand in the human constitution and that they should be eradicated if it can be done without too much damage to the essential works.

DIFFICULTY OF SCIENTIFIC PROOF OF DOCTRINE OF FOCAL INFECTIONS

The doubters to whom we have already referred maintain that we have not yet presented scientific evidence that the practice of removing foci of infection is helpful and sound, and we must admit that they are right. We are all convinced that improvement does not always follow such procedures. We have, on the other hand, seen many cases in which the improvement is striking. There are several difficulties in the way of scientific proof. We must take into consideration the psychology of the sick and recognize the fact that marked improvement may follow the ministrations of Christian Science healers, the institution of bizarre diets, or the exercise of other medical fads. We must consider, too, the natural course of the disease with or without therapy. Many chronic disease processes are characterized by very striking spontaneous remissions. A helpful method of study would be by means of carefully controlled series of cases, the one treated by removal of infectious foci, and the other treated in all other respects similarly but without the removal of such foci. Such studies may be conducted with comparative ease in acute diseases which run a relatively short course but are much more difficult in the chronic diseases, and those which have been attempted have not been particularly convincing to the advocates of either side of the controversy. So much for the clinical evidence.

From the laboratory or experimental side, animal experimentation does not satisfy the doubter for he recognizes that such experiments bear only crude resemblances to the diseases in human beings. One may, therefore, well hesitate before attempting to convince the honest and intelligent skeptic; but the doctrine is so appealing that we are apt to be greatly impressed by striking clinical examples such as the one that I shall now cite you.

ILLUSTRATIVE CASE

This was a case of a toxic hepatopathy that has been referred to several times in the literature by Barker. The patient was observed on the public wards of the Johns Hopkins Hospital some twelve or fifteen years ago and was one of the earlier cases that stimulated there a special interest in the possible relationship of oral sepsis to diseases of the internal organs. The patient was a hotel keeper, forty-eight years of age, who had used alcohol to great excess and during recent years had suffered from attacks of indigestion especially after debauches. His illness had begun insidiously about five years before and was characterized by progressive weakness, loss of weight, and digestive disturbances. On physical examination there was marked pallor and emaciation. There was extreme pyorrhoea alveolaris, all the teeth sitting in pus baths. There was a firm, palpable spleen and a greatly enlarged liver, its edge being felt at the level of the umbilicus in the right mammillary line. There were a marked secondary anaemia, an achlorhydria gastrica, moderate fever up to 100.5°, slight jaundice, and a somewhat confused mental state. During the first period of his hospital stay attempts were made to clean up the mouth by repeated irrigations with antiseptic solutions but the pyorrhoea continued most profuse and the patient's general progress was downward. It was then decided to extract the infected teeth and after this was done the general improvement was most surprising. Within a week the temperature was normal, the mouth was clean, and the patient stated that he felt much better. The reduction in the size of the liver was so speedy, after the removal of the teeth, that it seemed quite impossible to doubt a direct relationship between the oral sepsis and the hepatic enlargement. The patient gained rapidly in weight and left the hospital about

three weeks after the teeth were extracted feeling very well. One is tempted to interpret this case as illustrating a constitutional susceptibility of the liver to disease, a further constitutional defect of the nervous system that permitted and encouraged an excessive alcoholism, with a resulting alcoholic cirrhosis. The development of a severe pyorrhoea alveolaris had brought about a general intoxication with the toxic hepatopathy and a severe secondary anaemia. With the removal of the oral sepsis the enlargement of the liver disappeared, the blood rapidly improved, the patient gained in weight and his general condition was greatly bettered.

TYPES OF ORAL SEPSIS

We believe that oral sepsis shares the honor, or the dishonor, with infected tonsils and paranasal sinuses, as the chief among focal infections. In general we would expect tonsillar and sinus infections to predominate in youthful individuals and oral sepsis to be of more importance in people of middle age and later life. The types of oral infection that interest us most are superficial suppurative gingivitis or pyorrhoea alveolaris and the deeper periapical infections resulting from infected pulp and associated usually with pulpless and, perhaps inadequately treated, pulpless teeth.

RESULTS OF ORAL SEPSIS

In regard to the disturbances of the general health that may result from focal infections in general and from oral sepsis in particular, we have already intimated that extremists in the medical profession have made absurd claims and have instituted tragic surgical procedures to cure almost all the ills to which the human flesh is heir. But we need not let this bother us too greatly when we remember the unfortunate tendency in this country to push ideas and practices to extremes. Among the pathological conditions in the body that are more generally accepted as being frequently secondary to such focal infections we may mention: infections of arthritis and its associated myositis and fibrositis; infections of the nervous tissues, especially neuritis, retrobulbar neuritis, chorioretinitis and other lesions in the ophthalmological domain; endocarditis and other inflammatory lesions of the heart; nephritis; secondary anaemias; certain gastrointestinal disturbances; and we believe also that certain generally run down states of the system appear to be sequels of, or at least

are very unfavorably affected by, the presence of primary infections localized in some part of the body.

PATHOGENESIS

In regard to the method by which these disturbances may be brought about it would seem that direct extension of infection may occur from infected teeth and gums to other structures of the mouth, to the paranasal sinuses, to the tonsils and pharynx, and by aspiration to the lower respiratory tract. Gastrointestinal disturbances may result from the constant and prolonged swallowing of purulent, infected material of pyorrhoea, especially in association with an achylia gastrica. In the case of the production of more distant lesions there must usually occur an actual metastasis of bacteria, especially streptococci, but it seems possible that some disturbances may arise from the absorption into the blood of poisonous material from the locally infected areas.

LOCALIZATION OF METASTATIC FOCI

The question of the localization of metastatic foci is a most interesting one. You are doubtless familiar with the experimental work inaugurated by Rosenow and confirmed by some other bacteriologists and their interpretation of the experimental results to the effect that the bacteria themselves, by reason of their adaptation to certain degrees of oxygen tension or other physical and chemical conditions, have acquired the property of localizing in certain definite structures of the body where such physico-chemical conditions obtain. These experiments and interpretations have never seemed to me particularly convincing, however fascinating they may be to a bacteriologist. It would seem that the determiners of localization would be much less superficial and would depend rather upon innate and acquired susceptibilities of different tissues of the host rather than upon some quality of the invading microorganism. The pathologist often sees interesting examples of tissue susceptibility or resistance. Why, for example, does one almost never see a miliary tubercle in the pancreas in a case of generalized miliary tuberculosis, although other focal necroses may be found in that organ.

CONSERVATISM IN PROGNOSIS

In the treatment of oral infections for systemic disease conservatism in expectation, and especially in prognosis, may save us much disappointment, many heartaches and perhaps even some lawsuits. The prognosis, of course,

in any given case will vary greatly with the attendant circumstances. If we have a patient with marked oral sepsis, a moderately developed secondary anaemia and a mild general debility, we may by removing the oral sepsis and advising a period of rest or vacation and general upbuilding measures, obtain a speedy result highly satisfactory both to patient and physician. In other conditions in which the process seems to be a toxemia instead of a metastatic infection the outlook should be just as encouraging. But, on the other hand, we may have a case of well developed infectious arthritis and just as definite oral sepsis. After careful search we may be able to demonstrate no other possible source of infection and we will feel reasonably sure that the infection in the joints has resulted from that about the teeth. We will, therefore, feel it to be our duty to remove the infected teeth to prevent the repeated or the continuous reinfection of the joints, hoping that, with the source of further infection removed, we may be the better enabled to combat the infection that already exists in the joints. But the infection is there in the joints, it is not tied to the roots of the teeth, and it is altogether unfair to expect it to be extracted with the extraction of the teeth. As obvious as this interpretation would seem to most of us it is not universal and one not infrequently hears expressions of regret and disappointment that the joints are not well a week or two after the oral sepsis has been satisfactorily treated.

PROPHYLAXIS

Then there are those lamentable cases where we are convinced that the streptococcus viridans has been seeded off from a periapical area and has lodged in or upon a damaged heart valve with the formation of a nidus of growth there and the production of the clinical picture of endocarditis lenta or subacute bacterial endocarditis. We may be sure that the source of the infection was in the infected tooth but experience has taught us that not in one case in a thousand will the extraction of that infected tooth be of any help in controlling the endocarditis. Here, indeed, is a case where an ounce of prevention would have been worth a thousand tons of cure.

For those of us who believe in the doctrine of focal infection and who practice it in therapy it is logical to extend this belief and this practice to prophylaxis, but in spite of its logic our position at once becomes more

difficult. It may not be easy to persuade a person to sacrifice what seems a sound and useful tooth because we believe it to be infected and a potential source of danger to him. Too frequently we have no data concerning his constitutional defects or susceptibilities and we cannot deny that many people have enjoyed oral sepsis to a ripe old age without suffering obvious damage therefrom. It is often difficult to decide just how much professional pressure should be exerted on such patients. In certain cases the indications may be clear enough. In a patient with a past history of one or two attacks of acute arthritis or in a patient with an old mitral lesion, one would be inclined to be radical rather than conservative in the treatment of oral sepsis.

THE PULPLESS TOOTH

In this connection, another point of doubt assails us. While to a certain extent the whole subject of focal infections is controversial, that controversy pales into insignificance compared to that which has raged about the pulpless tooth. When is a tooth infected? What constitutes oral sepsis? Are all pulpless teeth dangerous? We had felt that we had a definite criterion in the evidence furnished by radiograms but now there are those who maintain that teeth with large areas of rarefaction indicate a satisfactory resistance of the tissues and are relatively of little danger and that, on the other hand, many pulpless teeth with no radiographic evidence of infection have been shown to be infected by bacteriological studies.

The reunion of medicine and of dentistry that has come about largely through the influence of the doctrine of focal infection has been a great stimulus to the rejuvenation of dental research and of medical research allied to dentistry. Much of this research has been done by men who were fitted for it neither by temperament nor by training. As in other domains of medicine, much of this research has been fruitless and some of it harmful as a result of faulty observations and erroneous interpretations. We have every reason to hope, however, that the masters among these research workers will, after a while, supply us with the data we need in regard to infected teeth and that they will so improve the technique of dentistry as it is related to infection that the problem of oral sepsis will ultimately be a much less conspicuous one.

Some striking figures have been published

concerning the bacteriology of pulpless teeth by Haden and other bacteriologists and research laboratory workers of national repute. Some of you may have read Haden's articles and seen his exhibits at National Conventions during the past year or two. He has cultured thousands of teeth which were extracted and treated bacteriologically with a uniform technique. One method of study was by means of inoculating deep agar tubes. By this method he found that of 400 vital teeth that had been extracted 85 per cent were sterile. Of 600 pulpless teeth that were radiographically negative 44 per cent were sterile. Of 500 pulpless teeth that were radiographically positive 26 per cent were sterile. On the other hand, of the vital teeth 4.8 per cent showed more than ten colonies of bacteria. Of the pulpless teeth that were radiographically negative 46 per cent showed ten colonies or more and of the pulpless teeth that were radiographically positive 62 per cent showed ten colonies or more.

CO-OPERATION OF PHYSICIAN AND DENTIST

In spite of these bacteriological reports we have not yet come to the point where we are willing to recommend freely the extraction of a pulpless tooth that shows no other evidence of infection. We prefer to have such teeth watched carefully by the dentist with radiograms taken three or four times a year. We thus would attempt to steer a middle course between those who are quite radical on the one hand and those, on the other hand, who attempt to save too many teeth that present definite signs of infection. In this connection we feel that it is of the greatest importance that physician and dentist work together in harmony and with sympathetic understanding of each other's aims and ideals. Dentistry was once and is again becoming a subdivision of medicine, a medical or a surgical specialty. We, as physicians, need the help of the dentist in decisions affecting his domain and we believe that we are in a position to be of considerable help to him in the practice of his profession.

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RINGWORM INFECTION OF THE GLABROUS SKIN.*

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In general we recognize three types of ringworm infection of the glabrous skin: First, *tinea circinata*, or the ordinary ring-

acromycosis, a name I have given to designate ringworm infection of the terminal portions of the extremities.

When considering the glabrous skin as a whole, the term ringworm conveys the usual impression of erythematous and squamous

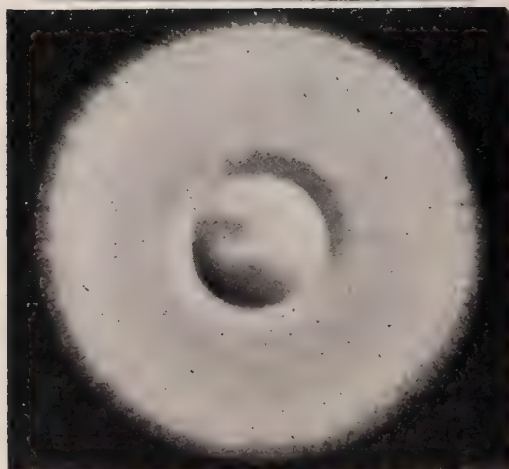


Fig. 1—*Trichophyton Rotundum*. Cultures (a) 30 days on peptonized gelatin. (b) 30 days on glucose gelatin. (c) 30 days on maltose gelatin. (Recovered from a Herpes Circinei lesion on the back).

worm lesion so well known to all of us; Secondly, *eczema marginatum*, involving the genito-crural and axillary regions; Third,

*Read before the Medical Society of the District of Columbia, October 10, 1927.

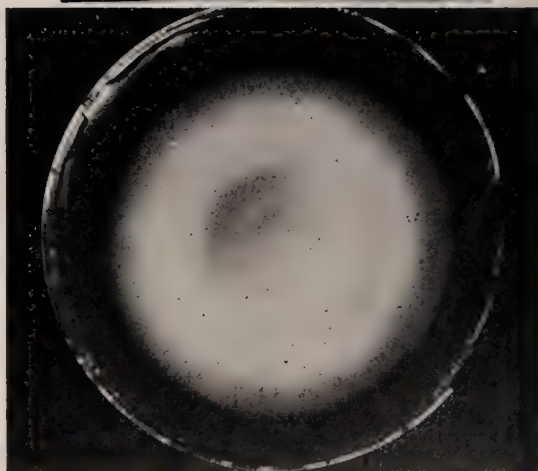


Fig. 2—*Epidermophyton Clypeiforme*. (a) 35 days on peptonized gelatin. (b) 30 days on glucose peptone. (c) 60 days on glucose gelatin. (Parasite recovered from a case of Eczema Marginatum involving genito-crural and axillary regions).

areas, remarkable for their contour and exact geometrically oval or round forms with sharply limited borders. These circles are almost

without exception complete and their surfaces are made of scales, pustules, or even crusts. As further characteristics we notice the vesiculation similar to that found in eczema. However, in this case the vesicles occur on the border of the lesion or in concentric rings, in contrast to their irregular and general distribution in eczema. (Fig. I).

The second type, eczema marginatum, was definitely proven parasitic in 1908 by Sabour-

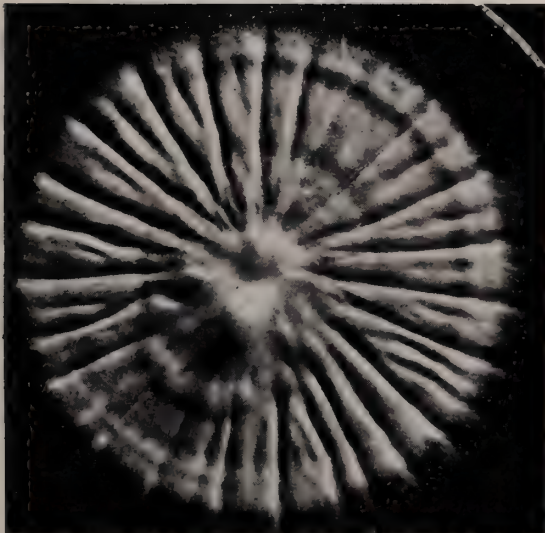
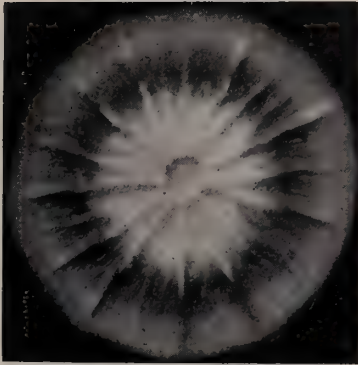
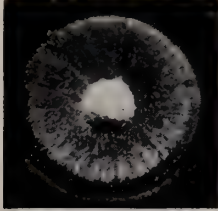


Fig. 3.—*Epidermophyton Plurizoniforme*. Cultures (a) 35 days on peptonized gelatin. (b) 45 days on glucose gelatin. (c) 75 days on glucose gelatin. Note pleomorphism in center. (Recovered from case of acromycosis—both hands and feet).

ard, who believed at that time that one type of epidermophyton caused all these infections. Since then several new parasites have been found and cultured. (Fig. II and Fig. III).

Eczema marginatum is usually located on the inner surface of the thighs, beginning well up in the groin in the form of one or several bright red, sharply limited patches that itch intensely. These patches spread rapidly and coalesce to cover large surfaces, limited by the well known festooned and vesicular border. New small lesions are usually seen just beyond this border. The eruption may reach the rectal region or extend down to the knee if not properly treated, and the duration of the disease may be from weeks to months, or even years.

Eczema marginatum differs from herpes circinata by its predilection for the covered regions and by the tendency for the individual lesions to coalesce and form large plaques with polycyclic borders. The patches are not always oval or round and do not always form a complete circle.

Intertrigo is differentiated from eczema marginatum by its perfect symmetry and its indefinite border. In erythrasma the surface is uniformly dry, red, and covered with a fine scale without any vesiculation on the borders.

Ordinary eczema is less regular in form and the eruption is much more polymorphous in character. In addition, eczema is comparatively rare in these regions of the body. In localized dermatitis we can always get a history of some irritant.

The third type, acromycosis, ringworm of the feet and hands, does not appeal to any great degree to the average medical man, but during certain months of the year in this region, the disease and its complications comprise 20 to 30 per cent of the specialists' practice. Although the lesions in themselves appear trivial to the patient, it is the terrific itching which brings him to us. Where large numbers of men and women are grouped together, as in armies, colleges, schools, *et cetera*, clinically one-third of them show ringworm infection involving the hands or feet. Only about one-half of this number can be proved parasitic by microscopic findings, while cultural demonstration of the parasite is even more difficult.

Ringworm involving the extremities gives us an entirely different picture from that of the first two types, and may easily be confused with dyshidrosis, eczema, dermatitis or maceration caused by excessive sweating. The involvement is usually in the interdigital folds, especially between the fourth and fifth toes

and on the flexor surface of all the toes. The horny layer of the skin appears white, macerated, and peels off easily in large flakes, leaving a rosy, red surface covered with a thin creamy pus. On the spreading borders of these lesions, or disseminated through them, are seen numerous vesicles. These vesicles are remarkable for their depth, irregular contour, and the fact that they vary so in size,—points of great importance in differentiating them from the vesiculation of ordinary eczema.

This same type of lesion when found on the bottom or the sides of the foot appears as a dry, scaly eruption, less often vesicular and pustular, depending upon the degree of involvement.

superficially in the form of scaly festooned patches or a mild and often fleeting vesiculation. Here, again, the thick, horny layer of skin of the palms offers the greatest protection to the parasite, and we find the disease in this location most frequently.

A very unhappy complication in this disease is the involvement of the nails of the fingers or toes. The infection is under the nail plate and resists all known forms of treatment at the present time. Surgical removal of the nail offers the only hope of a cure. However, the nails may be involved primarily without spreading to the surrounding skin. I recall the case of a prominent dermatologist and investigator in this field who has had an

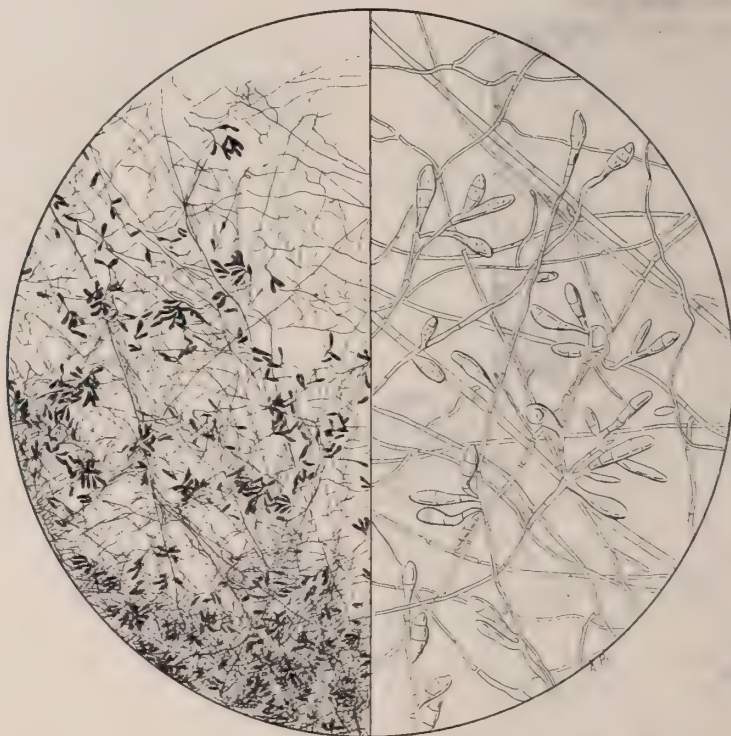


Fig. 4—*Epidermophyton Clypeiforme*. Culture of eleven days grown in a hanging drop of glucose bouillon showing organs of fructification.

The parasite of this group, called the epidermophyton, photographs of which are shown in Fig. IV, has a special preference for darkness and moisture; hence, by far the largest number of cases involve the lateral and inferior folds of the toes. In old and neglected cases the infection may extend also on the dorsal surface of the foot and take on the appearance of impetiginous eczema.

The hands and fingers are involved much less often, and the lesions here appear more

infection of the nails of the two large toes for thirty years without any encroachment upon the surrounding skin.

DIFFERENTIAL DIAGNOSIS

Ordinary vesicular types of eczema involving the entire foot or hand offer no difficulty in diagnosis. The isolated patch is another problem. However, the eczematous lesion is almost invariably found on the dorsum of the foot, and the vesicles are small, of equal size,

and located superficially. The skin in which the vesicles are embedded is red and clean looking, having none of the macerated soggy appearance of ringworm.

True dyshidrosis is to be told from ringworm by the following facts: Dyshidrosis is a recurrent eruption that usually appears in the spring or fall. It begins symmetrically on the hands or feet, or on all four extremi-



Fig. 5—Culture of nine days grown in a hanging drop of glucose bouillon showing organs of fructification (1 to 350).

ties at the same time: it is preceded by sensations of burning, itching and tension, all of which may be very severe. The eruption usually appears suddenly and often spreads over-night to involve the entire hand or foot. Clinically, from the very beginning, the vesicles are deeply situated in a skin surface that shows no inflammatory reaction. The appearance of the vesicles, especially on the sides of the fingers, have been likened to boiled sago grains. Often the epidermis exfoliates in large sheets, leaving a smooth, red, clean surface. Sometimes the vesicles may increase in size and coalesce to form large bullae, the contents of which soon become purulent. Dyshidrosis may be due to a idiopathic derangement of the sweat gland ducts, or an exactly similar picture may be produced by chemical irritants. Certain medicaments produce a mild form of dyshidrosis, often wrongly called ringworm.

The superficial scaly lesion having festooned borders but not showing any macroscopical vesiculation, found particularly in surgeons, barbers and others who have occasion to apply alcohol to the hands frequently, is not to be confounded with ringworm.

Of course, the demonstration of the parasite makes the diagnosis absolute, but this is not always possible, and often entails many hours of search. The best method of examining the scales is as follows: the tops of the vesicles or a piece of macerated skin are placed in a watch glass containing 30 per cent potassium hydroxide solution and allowed to come just to boiling over a Bunsen burner. Then the preparation should stand for one-half to four hours depending on the thickness of the specimen. The scales are then placed on a slide and examined with the low power of the microscope. The parasite appears as long or short, wavy, undulating mycelia segmented at irregular intervals. (See Fig. VI).

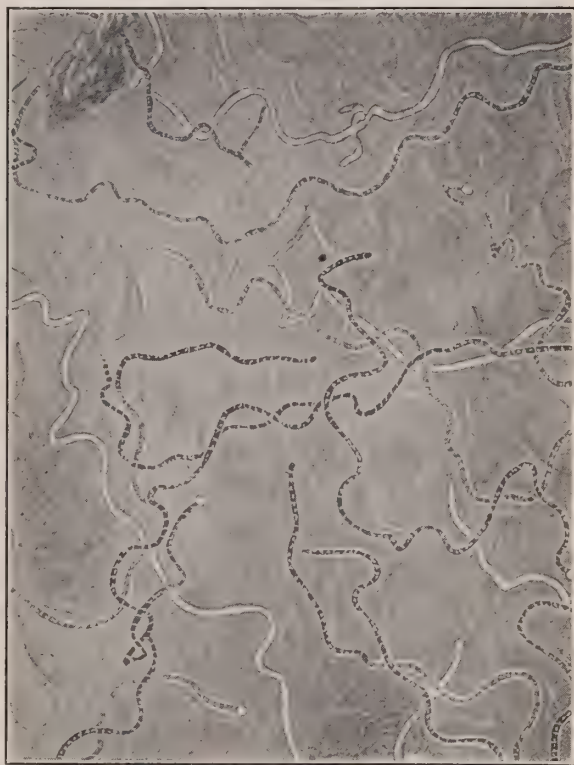


Fig. 6—Appearance of mycelium in scales (from feet). Prepared in 30 per cent KOH (1 to 350).

At the present time the practitioner has been well educated in regard to the possibility of ringworm infection of the hands and feet. Personally, I believe that we are now diagnosing too many eczematous and dyshidrotic lesions as ringworm. This statement is brought out by the fact that the treatment, instead of being palliative, has been anti-parasitic, and the results are always disastrous.

TREATMENT

Type I, or the ordinary lesion on the uncovered parts, responds readily to application of one-half strength tincture of iodine applied several times daily.

In type II, *eczema marginatum*, best results are obtained by using a 1 per cent solution of iodine in 70 per cent alcohol each morning, and an ointment containing one part of salicylic acid and one part of benzoic acid to 30 of lanolin and vaseline at night.

In treating the feet, more energetic measures are necessary. In addition to using the 1 per cent iodine solution and the benzoic-salicylic ointment, as above, the lesions should be curetted with a dull instrument at each visit to the physician. Again, I always advise the patient to get a pumice stone and remove all the dead skin possible each night. There is no use applying medicines to thick crusts or macerated skin which serve as a perfect protection to underlying parasites.

In addition to the above, if available, X-ray in doses of one-eighth erythema dose twice a week greatly shortens the course of the disease. We do not know just how the X-ray works here, but the results speak for themselves.

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A STUDY OF THE ACTION OF THERAPY IN NEURO-TREPONEMATOSIS.

By T. LATANE DRISCOLL, Ph.B., M. D., Richmond, Va.
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I am firm in the belief that the methods in use today in the treatment of neuro-treponematoses with salvarsanized or auto-salvarsanized sera has little or no specific action, due to the infinitesimal amount of the drug, and, further, in the case of re-enforced serum the drug has not developed the treponemicidal value that it does after having passed through the portal circulation, where it has at least been metabolized, thus bringing about the activation necessary for the destruction of the organisms. It is generally known that treponemata may survive for many hours in a solution of arsphenamine far in excess of any that might be sustained by the human body.

As to tryparsamid, it has no treponemicidal action, as evidenced by the fact that no effect is had upon primary or secondary lesions, the organisms remaining in the lesions as without tryparsamid. Malaria inoculation can have no

specific action because the fever can be induced to the same degree by many methods, and protein injections as such have no action upon the symptoms. A toxemia of some type is usually present in paretics, with the symptoms continuing as before.

Whether after aseptic injuries of the brain there may be regeneration is still a mooted question, but the work of Strausler and Koskinos¹ after the examination of thirty-eight brains following undoubted congestion, and disease processes with more or less actual destruction, seems to give conclusive evidence



A. Very slight hyperemia following re-enforced spinal fluid injection.

that regeneration does occur, thus: Six months after an artificially induced malaria, given therapeutically in general paresis, "the meninges are found slightly thickened, the vessels normal, and without perivascular infiltration. The cortical laminae are normal in width, and the cyto-architecture is undisturbed. There is richness in the nuclei of the zonal layer but glia proliferation is absent. Rare infiltrating cells are found in the cortex, some in the sub-cortical white matter, and the meninges. They are lymphocytes. Glia proliferation and red cells are absent. In other words, general paralysis is unrecognizable."

As further evidence of the healing process seen from a purely clinical view-point, there may be a complete remission from all neurologic and psychiatric phenomena. Indeed, these remissions make one wonder just how permanent the histo-pathologic picture is.

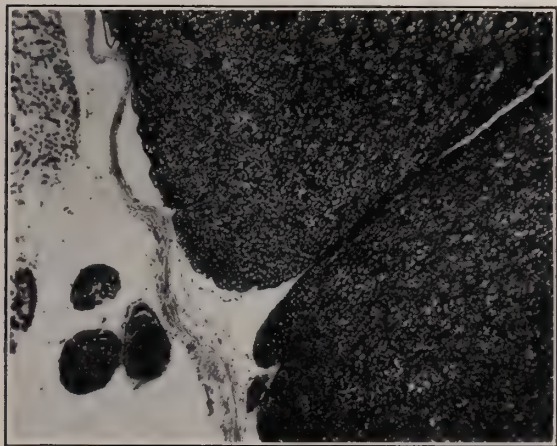
Freeman,² basing his observations on fifteen brains following malaria inoculations, states that "except for the reduction in the number

of neurons in the cerebral cortex and marginal gliosis, the anatomic picture does not deviate from the normal."

Assuming the foregoing as correct, and, further, assuming that the small amount of arsenic has no specific effect, and with the thought in mind that the Swift-Ellis technique gives as definite results as the re-enforced serum, we perforce must seek some explanation other than the specific action of salvarsan in the spinal canal. With this in mind, the following work is submitted.

Following therapeutic malaria in general paralysis, Gerstman³ has this to say: "At first the malaria accentuates the inflammatory reaction, giving rise to great exudation into lymph spaces and nerve substances."

Freeman makes the following observation during the early stage of malaria treatment: "The cortex is narrowed and its density increased by the large number of cells present.



B. Moderate hyperemia following air injection.

Blood vessels stand out with great prominence, both because of their size, and on account of their collars of infiltrating cells. It seems as though this marked aggregation of cells in the perivascular space was a manifestation of an organization of an inflammatory exudate."

As to the intra-spinal treatments, both salvarsanized and auto-salvarsanized, we have the following microscopic picture of experimental animal brains: these animals were injected with 1 milligram of salvarsan in 5 c.c. of spinal fluid, and autopsied on the third day, being killed with nicotine on the tongue. The cord shows little hyperemia, advanced degeneration of supporting tissue, and many nerve

cells have lost their nuclei. The frontal and parietal lobes and cerebellum show a slight amount of hyperemia—mainly on the surface.

It is interesting to note, following out the idea of cases in which a simple spinal puncture was done that many paretics were greatly improved, that the animals in which 5 c.c. of air was injected into the spinal canal showed more definite changes than with chemicals. In air injected dogs the pial vessels showed hyperemia, while the cerebrum manifested marked hyperemia along the surface and sulci.

After intravenous injections of tryparsamid, the cerebrum shows marked and definite hyperemia along surface and sulci. The vessels are distinctly engorged. In the cord, pial vessels show hyperemia, and some hyperemia is noted in the interior of the gray matter. These findings are in keeping with what we might expect following the injection of about 1 Gm. of arsenic, because, as Sollman⁴ observes, "after arsenical intoxication there is an increased permeability due to the relaxation of the walls of the capillaries, and consequently by changes similar to those of inflammation." This is further borne out by the encephalitis and optic neuritis so often seen following the injection of tryparsamid.

CONCLUSIONS.

It would seem, in view of the foregoing findings, that all special therapy in the treatment of neuro-lues has the one action—that of the induction of hyperemia in the brain and cord,—and this in turn brings about what one would naturally expect, a regeneration. The degree of hyperemia parallels the positive clinical results we have obtained.

PRACTICAL APPLICATION.

With the induction of hyperemia as the working hypothesis, the following cases are reported:

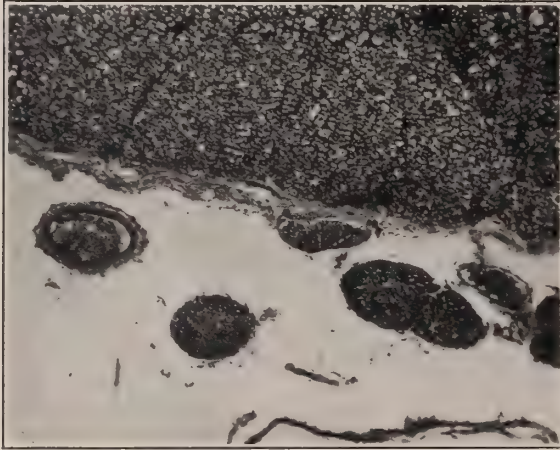
J. M., age 37; salesman. Has been depressed for 18 months. Delusions of persecution. Thinks wife is to be harmed by visitors. Unable to get along with employer or customers. Judgment very poor.

Blood Wassermann 4 plus; spinal fluid 4 plus; globulin 2 plus. Upper zone curve. Diagnosis—general paresis.

Patient was given four injections into spinal canal at weekly intervals, consisting of 10 c.c. of air as measured in volume by the syringe.

At the same time 10 c.c. of spinal fluid was removed.

Two months later, this patient saw life optimistically, with no delusions or hallucinations. He was then working regularly and his employer stated he was very efficient. Ten months afterwards, there had been no recurrences, the patient was happy and contented,



C. Marked hyperemia following trypanosin injection.

and his associates saw no deviation from his former normal condition.

Knowing the definite hyperemia produced by the Noguchi test, I applied this working knowledge to the cord and brain, with the results as seen in four cases.*

These cases were given .05 c.c. in the spinal canal, and were worked up to .5 c.c. There were no reactive phenomena, and these patients were in about the same condition after injections as before. The material injected was killed treponemata, finely ground, in a menstrum of saline and trikresol.

J. W.; age 27; laborer. Wassermann on spinal fluid and blood, positive; globulin 2 plus. Cells 53. Upper zone curve.

Patient is inarticulate, disoriented, and remains in bed without any voluntary movement. Involuntary passage of urine and faeces. Simply a vegetating organism. Diagnosis—general paresis.

Two intraspinal injections of Treponemata were given at weekly intervals. Condition of this patient at end of two weeks is markedly improved in that he is oriented, knows his name, knows his home address, walked up to

the third floor to operating room, takes food voluntarily, and has gained in weight.

Jas. McK.; age 32; cook. Wassermann on blood and spinal fluid, positive. Upper zone curve. Cells 12.

Patient is excited, with paranoid symptoms. He has millions of wives, millions of dollars, and race horses. He followed the Christ because he was greater than the Christ. He is King of Kings, owns the hospital, and I am his humble servant. Diagnosis—general paralysis.

Three injections of Treponemata were given at one week intervals. Patient has improved to the extent that he has only one wife, and not much money. Is oriented, knows name and address of his wife and relatives. Is tidy and quiet, well-behaved, and has gained in weight.

S. T.; age 23; driver. Patient has positive blood and spinal fluid. Upper zone curve. Globulin 1 plus. Cells 23.

This man is disoriented, markedly depressed, inarticulate, and very filthy.

Two injections of Treponemata were given at five day intervals. After two weeks patient is oriented. Answers ordinary questions intelligently, is active about the wards, eats regularly, and has made marked gain in weight.

R. T.; age 52; laborer. Upper zone curve; 17 cells; positive blood and spinal fluid; globulin 2 plus.

Patient is very much depressed. Answers no questions with any degree of intelligence. Disoriented as to time and place. Void of all judgment or conception of honor.

Two injections of Treponemata. There is no improvement in the mental picture of this case, although there is definite gain in weight.

SUMMARY.

In a series of four cases with definite improvement in seventy-five per cent, this mode of treatment, with further observation as to dosage, bids fair to be utilizable in the treatment of neuro-lues.

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*From the Service of Syphilology at the Central State Hospital, Petersburg, Va.

Treponemata emulsion furnished through the courtesy of Lederle Antitoxin Laboratories.

THE CARE AND REPAIR OF THE CERVIX AND PERINEUM IN CONFINEMENT CASES.*

By ROBERT P. KELLY, M. D., F. A. C. S., Lynchburg, Va.

As a native of Southwestern Virginia and a former resident of Bristol, it is a great pleasure to me to attend a meeting of the Southwestern Virginia Medical Society and to have the honor of addressing its members. I have tried to choose for this occasion a subject that would be of interest and importance not only to the specialist in my own line, but to the general practitioner as well. Such a topic, it seems to me, is "The Care and Repair of the Cervix and Perineum in Confinement Cases."

The care of the cervix and perineum during child-birth and their subsequent repair are at the same time one of the greatest and the most frequently neglected responsibilities of the obstetrician. There is perhaps no other one thing that so impairs the health of child-bearing women as the injuries to the cervix and perineum, and the neglect or imperfect repair of these injuries, the too frequent result being a life of physical discomfort or actual suffering. Many operations may be necessary later to partially restore health, whereas the proper treatment at the time of delivery would have obviated all bad results.

As a general practitioner, I do not believe anything gave me more worry and trouble than the repair of cervical and perineal lacerations, and many of my patients doubtless suffered as a result of my inability to make the necessary repairs.

It is my earnest desire to contribute to the prevention of these injuries by directing the general practitioner's more careful attention to this important branch of obstetrics.

I feel that it is the duty of every obstetric specialist to do all in his power to aid the general practitioner in the care of confinements, and what I may say regarding our short-comings in this respect is not intended as a reflection on any other physicians, but is rather a frank admission of my own imperfect work during my twelve years of general practice.

No one has more sympathy than I for the general practitioner who must deliver his cases in the home, with inadequate help and without the facilities of a hospital, but I do feel that practically all of these injuries, certainly the

most serious ones, can either be prevented or properly repaired if we are just a little more careful and if we familiarize ourselves with the correct methods of delivery and repair.

First, let us consider the cervix,—the causes, the prevention and the repair of its injuries.

As a rule, the cervix will not be injured in child-birth unless the baby is delivered before dilatation is complete. This statement cannot be too strongly emphasized.

The chief causes of cervical injury are the following:

1. Manual dilatation.
2. Pituitrin before the baby is born.
3. Too early application of forceps.
4. Versions and breech extractions before complete dilatation.
5. Versions following bag-inductions (since no bag, as a rule, will completely dilate a cervix).

We will discuss briefly each of these points

1. Manual dilatation: As DeLee says, "Manual dilatation means manual laceration." In no case can the cervix be dilated by hand without injury, and such efforts are not only futile but also invite infection, which may prove fatal. There is no more pernicious habit than "aiding" labor by manual dilatation.

2. Pituitrin before the baby is born: I am glad, indeed, to have this opportunity to condemn the use of pituitrin before the baby is born. I do not believe anything contributes so much to cervical injury as the use of this drug to accelerate delivery in so-called uterine inertia cases. It is often not uterine inertia, but his own impatience that induces the physician to resort to this powerful, most dangerous drug. It is frequently given before complete dilatation, causing both cervical and perineal injury and occasionally ruptured uterus. In addition to this, the baby may suffer cerebral injury, convulsion and death.

I can not better emphasize this point than to quote again from DeLee, who says: "Tis criminal to give pituitrin while the baby is in the uterus."

My opinion is that this drug has actually done more harm than good, due to its indiscriminate use. However, it does have a place in obstetrics when properly used, being of great value when given immediately after the birth of the baby's head, to control hemorrhage in the third stage of labor and to expedite the process. In this case, as soon as the

*Read by invitation before the Southwestern Virginia Medical Society at Bristol, Va., September 22, 1927.

placenta is delivered, a hypodermic of aseptic ergot is given. This is our routine for obstetrical cases at both the Lynchburg and the Virginia Baptist Hospitals.

3. Too early application of forceps: This is another cause of cervical injury, probably equal to that of pituitrin and, often, more disastrous to both mother and baby. I know of no more important thing in forceps deliveries than to be absolutely sure that dilatation is complete. In consultations, I have seen a number of cases in which forceps applications and attempts to deliver were made before dilatation was near completion, and in some of these cases I have found the baby dead, and have later seen the mother die.

The rule should be, generally, not to use forceps until the patient has been completely dilated (in the second stage) for one hour without progress, and not then if the operator is not absolutely sure of what he is doing and how to do it. It is much more to his credit to call for help, divide the honors with some one else and thereby bring more honor to himself.

In this connection, it does not seem out of place to mention the conditions necessary for a successful forceps delivery. They are as follows:

- a. The head must be engaged.
- b. The membranes must be ruptured.
- c. The cervix must be completely dilated. (In an emergency, Duhrssen's incisions may be employed.)
- d. The position of the head, i. e., the relation of the diameters of the baby's head to those of the mother's pelvis must be definitely known and proper application must be made.
- e. The patient must be surgically prepared and anesthetized.
- f. The baby must be alive.

If these rules are strictly observed, there will be no cervical injury, though we should bear in mind the fact that a forceps delivery is a major operation.

4. Versions and breech extractions before complete dilatation: This is a frequent cause of cervical laceration, and the remedy is quite obvious.

5. Versions following bag inductions: The largest bag will not completely dilate most cervices, and seldom in the case of a primipara does it do so. This is, therefore, one

of many objections to the routine delivery by the use of bags and versions.

As we are discussing in this paper the maternal injuries produced by these errors of delivery, no reference has been made to the baby, but it is frequently injured too, sometimes fatally, while these maternal injuries are being inflicted.

Following any operative delivery, the cervix should be very carefully inspected and, if injured, immediately repaired. I wish to emphasize the word, "inspected," for in no other way can we know whether or not we have a cervical laceration. The sense of touch is not sufficient.

The repair of the cervix is usually done with interrupted, No. 2, 20-day chromic cat-gut. Occasionally I use a continuous suture, a method which I accidentally discovered in repairing old cervical lacerations. In such cases it is more often applicable than in the recent ones, due to the very much thinned cervix in the latter.

The technique of the continuous method is as follows: The V-shaped, denuded area having been made, the suture is started at the apex of the V, including only the muscle. It is tied and the end left long. With a second needle this "end left long" is then run through the peritoneum of the cervix. The other end of the suture, on the first needle, is then carried forward, including only the muscle of the cervix, until the closure is complete. The last stitch is carried out through the peritoneum and is then continued back to the starting point, completely burying the muscle suture, making a very smooth and secure approximation, and is then tied with the other end of the suture, which was previously arranged for this purpose, leaving only one knot in the entire line of suture. This plan makes a much more secure union and one less likely to become infected; it also puts the only exposed knot away from the end of the cervix where it is better protected. Where the cervix is extremely thin this method can not be used, the interrupted suture being better.

We will now consider the perineum.

Many of the causes of injury to the cervix also effect the perineum.

Whenever I hear a physician say he has delivered a baby, especially a forceps case, without perineal injury, I am inclined to question the statement, for it can rarely be done. He

may be very sincere in his claim, but, perhaps, not sufficiently careful in his search for injury.

In taking histories of patients who have borne children, who state that no lacerations have occurred in former births, I am frequently shocked, on examination, to find a large cystocele or rectocele, the patient frequently being entirely ignorant of the existence of such a condition.

To simplify the discussion of this very important subject, I shall use the following classification:

1. Prevention of perineal lacerations.
 - a. By anesthesia. b. By episiotomy.
2. Repair of recent, or fresh, lacerations.
3. Repair of episiotomies.
4. Repair of old lacerations immediately following delivery.

1. Prevention of perineal lacerations—by anesthesia: Occasionally it is possible to deliver a baby for a primipara without tearing the perineum or the vaginal mucosa. The feat can be accomplished in only one way, as I see it. The patient is given anesthesia during her pains until, with the pain, a large part of the baby's head is visible, or until one feels sure that the head has advanced to such a point that it can be held and prevented from receding by pressure on the abdomen against the fundus, and until also, the delivery can be controlled and completed by such pressure, provided the patient is completely anesthetized. When the head has advanced thus far, the anesthesia is pushed a little more *in this way*. At the next pain the patient is requested to breathe very fast, to "pant like a dog," and in a few seconds anesthesia is complete, when the head may be very easily and gently pushed through, either by one hand of the operator or by an assistant. This method is particularly good in multiparae, and usually gives good results, but frequently, in the case of a primipara, one is disappointed to find a pretty ugly laceration, which, he realizes, could have been prevented by an episiotomy, to which I refer as the second means of preventing perineal injury.

It is only by a rather extensive experience with episiotomy that one is finally convinced that this operation is one of the most valuable aids to obstetrics. However, on the repair of the episiotomy depends the result. To this I shall refer below. Let me say, however, that, in my opinion, this procedure, properly ex-

ecuted, will do more to preserve the perineum than anything else we can do. In addition to this, it will save babies by shortening the second stage of labor; it will often make forceps unnecessary; it will render easy manual rotation of the head in forceps deliveries; it will reduce traction on the head, thereby minimizing cerebral injury in forceps delivery; it will render less difficult and less hazardous breech deliveries; it will leave a woman still a primipara, so far as her perineum is concerned; it will prevent prolapse of the uterus, cystocele and rectocele, and, finally, it will make wholly unnecessary secondary perineal repairs.

2. Repair of lacerations: To make a perfect repair of the perineum is, I think, in many cases, one of the most difficult operations we are called on to perform. Often it is next to impossible to find and approximate the various tissues which should remain intact, though, in the majority of cases, by very careful effort we can make a reasonably good repair. In doing this, there are several important things to bear in mind. The majority of such injuries are closed by a number of so-called "through and through" sutures, or stitches, going in on one side of the wound, in the skin of the perineum, running the suture deep, to the bottom of the tear, and coming out on the other side, where they are tied. In this way, the skin, with fascia, is approximated, and may have a very nice appearance, but what of the vaginal mucosa, the sphincter cunni, the urogenital septum and the levator muscle? One or all of these very important structures may have been missed by this method of suture, and practically always the levator is lost. Nor is the vaginal mucosa sutured, so that the lochia may flow into the wound and probably cause infection.

There is only one way, in my opinion, to repair these injuries. First, the vaginal mucosa must be closed. This should be done by a continuous, No. 2, 20-day chromic cat-gut. This suture may be put in submucously, if desired, and, so used, is better. The character of the laceration may govern this. This suture is continued out to the muco-cutaneous junction. Unless it is already submucous, just at this point it must be made so. It is then used to approximate the sphincter cunni muscle. This is best done by using tissue forceps to elevate the cut edge of the skin, and then,

with a sort of hook-stitch, going upward on either side, and pulling down the retracted muscle. This restores the original vaginal opening, and only by this method is it possible to do so. The end of the suture is left long and clamped, for the time being, and laid on the patient's abdomen.

Assuming that the levator is torn, we then, with two Allis clamps, "fish out" this muscle on either side. The next step is to cover the left hand with an extra glove, known as a "perineorrhaphy glove." The fore-finger of the left hand is then passed into the rectum to act as a guide to the passage of the needle and to protect the rectum from injury while the levator is being sutured. This I consider quite important. In fact, I do not think such a repair should ever be attempted, or can be properly and safely done, without this precaution. Having done this, one, two, or three, interrupted, No. 2, 20-day chromic cat-gut sutures are put into the levator muscle, going quite close to, but not, of course, entering the rectum. These sutures are not tied as put in, but are caught with clamps and held until the last one is inserted and the finger withdrawn from the rectum. The perineorrhaphy glove is then taken off the left hand by an unsterile nurse and the sutures are tied and cut. The urogenital septum is then sutured with a continuous No. 2, 20-day chromic cat-gut. At this point, this suture is tied with the original vaginal suture, which was left long for this purpose, the short end cut off and the long end used to close the fascia, finishing at the vaginal end. This same suture is then locked and used as a subcutaneous to approximate the skin. At the lower end of the wound it is thrust deep in the perineal fascia and made to emerge about two or three cm. to right or left of the point of entrance, depending, of course, on which side of the wound the suture was last passed.

Instead of using the cat-gut for the skin, this suture may be tied with the original vaginal suture, after first closing the perineal fascia, and a subcutaneous silk worm gut may be substituted for the skin, starting just inside the vagina and finishing as described for the subcutaneous cat-gut, both ends being left long or loosely tied together, if desired.

3. Repair of episiotomies: I do all my episiotomies on the patient's left side, beginning at the lowest point in the mid-line, going

out at an angle of about 120 degrees. This has the advantage over the mid-line episiotomy in that it is away from the rectum, and, therefore, prevents injury to the sphincter ani in case of an extension, which, however, is rare if the episiotomy is sufficiently deep.

Just here I would like to digress a bit from the subject to mention one very helpful point in determining whether or not to do an episiotomy in a given case. What I have in mind is the bleaching of the perineum around the baby's head. When this occurs, a tear is usually inevitable and an episiotomy is indicated.

The repair of episiotomies is done in exactly the same way as the repair of lacerations, step for step, making it unnecessary to go again into the details of the operation. The vaginal suture I usually put in submucously. The perineorrhaphy glove is always used. Formerly, I used silk worm gut for the skin, but for two years I have used cat-gut, and the patients have had no infections and have been more comfortable.

Should the patient return for a second confinement (and occasionally one does), a second episiotomy is done in the line of the old scar, if that can be seen, though it frequently can not.

The more I have done this operation the more I have realized the value of it. I know of nothing which does so much toward preserving the health of women as this method of treating the perineum during delivery. Furthermore, I am sure that no patient on whom I have done an episiotomy in the past four years, had had or needs a perineal repair. On the other hand, seldom does a week pass that I do not see one or more patients, who have absolutely no perineum, the result of previous child-birth.

Repair of old lacerations immediately following delivery: Up to a few years ago many obstetricians advocated the postponement, from a few days to weeks, of repair of perineal lacerations, and no one ever considered for a moment the repair of an old laceration immediately following delivery,—the reasons given for the delay being, among others, that the chances of the infection were too great and that bleeding interfered.

A few years ago I held an appointment in a maternity hospital where we were required to repair all old lacerations as soon as the

delivery was completed. I was shocked, at first, having never dreamed that such a thing could be successfully done. Now, scarcely a week goes by that I do not perform one of these operations. I have been doing this for years and, so far, the results have been uniformly satisfactory.

In favor of the operation at this time, the following points may be cited: 1. It can be just as safely and just as easily done. 2. The tissues are more vascular, and, I think, as a result, heal better and take care of infection better. 3. The patient needs the operation, has needed it for years, perhaps, and probably would not consent to it at some future time. 4. The additional anesthesia is almost negligible. 5. The patient is saved the suffering, the time and the expense of an operation at some future date. In fact, you save her, by operating at this time, more than your fee for the combined delivery and repair. 6. The stay in the hospital is not prolonged, these patients going home on the eighth or ninth day, as all my cases do, unless something unusual develops.

This operation is done practically the same way as the perineal tear and the episiotomy, the only difference being the dividing of the muco-cutaneous border from left to right and separating the vaginal mucosa. To do this, we simply get the points on the two sides, with two Allis clamps, and put the perineum "on the stretch" between the clamps. The incision is then made by trimming off the border, from the left to the right clamp, or the reverse, if desired; the vaginal mucosa is then stripped back with the gauze-covered fore-finger. In doing this with the finger, the rectum will not be injured, but should any cutting of the tissues be necessary, this organ must be carefully protected. The superfluous vaginal mucosa is trimmed away, leaving a V-shaped area, the angle of the V being to the back. Any ragged edges are smoothed up, and a No. 2, 20-day chromic cat-gut, continuous suture is used to close the vaginal mucosa, beginning at the angle of the V, continuing up to the muco-cutaneous border, where it is made submucous, the end left long being clamped and laid on the patient's abdomen for future use. After the levator sutures are put in, the urogenital septum is then sutured with a continuous cat-gut. The original vaginal suture, that has been used to bring together the sphincter cunni, is tied

with the perineal suture to which I have just referred. The shorter end is then cut off, the long end being used to close the subcutaneous fascia, locked at the vaginal end of the skin incision, and used as a subcutaneous to approximate the skin.

In all these operations it is well, after the subcutaneous suture is finished, to take a number of Allis clamps and pinch together the edges of the skin wound until the patient's legs have been taken out of the stirrups and put together, when the clamps are removed. This tends to act in the same way as skin clips, hence insuring better approximation of the edges.

Instead of the repair of the perineum, as described above, with cat-gut throughout, there is another method which I sometimes use and which is somewhat simpler and quicker. It is done as follows: The vaginal mucosa is sutured, as usual, with continuous cat-gut, carrying the suture out to the skin border and leaving it long for future use. Then, the levator, urogenital septum and skin are brought together with three or four or more figure-of-eight silk worm gut sutures, the first part of the 8 including everything except the subcutaneous fascia and skin, and the last part of the 8 including these structures. This is a simple and easy method of repairing episiotomies and lacerations, and is advisable until one becomes more experienced with the cat-gut method. The sutures should not be tied tight; if so, they will cut out. There should be from a quarter to a half inch space between the skin edges, when tied. This method is also preferable if any danger of infection exists.

In conclusion, I wish to repeat that I consider it our duty to pay more attention to the care and treatment of the cervix and perineum in our confinements. By so doing we will not only save our patients much discomfort and ill health, but also heavy expenditures for hospital treatment that they ought not to require.

To do a good perineal repair requires more knowledge, skill and time than an appendectomy, and the fee for such an operation should be just as much, or more.

Unless we can properly repair these lacerations, we are but little, if any, more efficient than the mid-wife; and certainly no one should

undertake obstetrical cases who is incapable of doing a reasonably good perineorrhaphy.

We obstetricians, who claim to know something about these repairs, should never lose an opportunity to impart such knowledge as we may possess to the general practitioner. I feel that much may be accomplished by this means.

Finally, if we do well our part as obstetricians, the gynecologist will have more time to play golf, the mothers will fear less the agonies of child-birth, there will be more babies born into the world and the pockets of the obstetricians will be overflowing.

SINUS DISEASE—ITS RELATION TO GENERAL OR SYSTEMIC CONDITIONS.

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It is the firm belief of many investigators that certain constitutional disorders have apparently been caused by suppurative disease in the paranasal sinuses. Some of these constitutional disorders can often be traced to childhood when sinus disease began. Schaeffer has pointed out that the ethmoidal as well as the sphenoidal sinuses (and perhaps frontal and maxillary sinuses) can "become the seat of pathological processes" as early as the third year. The writer has had under his observation well authenticated cases of cardiac disease, nephritis, arthritis, bronchitis, erysipelas and psychoneurosis in which he feels definitely positive that the cause resulted from disease of the paranasal sinuses.

Every one who has had much experience with children can recall a case in which there is acute illness with high fever, leucocytosis, vomiting, loss of appetite and headache, in which suppurative disease of the nasal sinus is the only discoverable cause.

Chorea with heart involvement has frequently been successfully combated by treating an existing paranasal sinus infection.

Herpes zoster over the first division of the fifth nerve has been found to accompany acute suppurative disease of the sphenoid. It is the belief of many that one of the most frequent and most serious of the systemic manifestations of sinus infection in children is acute parenchymatous nephritis and that when the

sinuses are cleared up all evidences of nephritis promptly disappear.

In a recent review of the subject, Dean enumerates a great number of conditions associated with sinus disease and which are cleared up by removing the sinus pathology. Among these conditions he lists phlyctenular conjunctivitis, iritis, retrobulbar neuritis and choroiditis. He alludes to the possible interdependence between chronic multiple infectious arthritis and paranasal sinus disease in infants and young children. He also believes that the absorption of bacterial protein from an infection of the sinus may be an etiological factor in the causation of asthma in childhood, because they are benefited by the treatment of the sinus infection. Such cases have been reported by Byfield and others.

Pharyngitis, laryngitis and bronchitis, particularly in children, are often the end results of paranasal sinus disease. Osteomyelitis of the bone surrounding the diseased sinus may occur. Other conditions reported from time to time are cavernous sinus phlebitis, meningitis, brain abscess, periodic vomiting, cervical adenitis, chronic tonsillitis, etc.

Any condition that may result from a focus of infection, especially in children, may result from sinus disease. Among such conditions may be included the following: Cardiopathies, rheumatic fever, chorea, nephritis, pyelitis, certain cases of cyclic vomiting, deforming peri-arthritis, anemia, anorexia, malnutrition and chronic digestive disturbances.

Paranasal sinus diseases of a chronic nature produce listlessness, poor appetite, underweight, poor color, in short, the condition so commonly observed in children and young adults who have hypertrophied and infected tonsils and adenoids.

In view of the fact that accessory sinus disease is a very common finding in patients suffering with bronchial asthma, many investigators have suggested that there is an etiological relation between these two diseases. Gottlieb suggests four possible ways by which the symptom complex called asthma may be produced through nasal disease. Mucopurulent material may drip into the pharynx from an infected sinus and the infection gradually involve the mucous membrane of the trachea and bronchi. Mucopurulent material may be retained in a sinus and the toxic products be absorbed through the blood stream or lymphat-

ics or both and produce allergic phenomena that may manifest themselves in asthma. The nose may be obstructed by polypi and enlarged turbinates, and the patient is compelled to breathe constantly through the mouth and the effect of cold and dry inspired air, combined with the presence of infected material on the sensitive mucous membrane of the trachea and bronchi, might conceivably be the exciting factor in the production of bronchial asthma. Finally, a spasm of the musculature of the bronchi might be produced through nerve reflex by irritation or disease of the nasal ganglion.

Sluder explains the asthma of nasal origin by stating that the path of impulses is from the nasal ganglion through the median, upper, middle and lower cervical and first thoracic ganglia, through the last two of which pass the heart and lung fibers.

Dennis reported twenty-eight cases of asthma out of sixty patients having accessory sinus disease and Gottlieb reports thirty-one out of a series of 117 carefully studied cases of paranasal sinus disease.

In conclusion the writer wishes to urge upon the profession the extreme importance of a careful examination of the sinuses in all patients with a condition originating from a suspected focus of infection. With regard to the tonsils and teeth, an examination of these structures is usually carried out in a routine way, often with negative findings, while the accessory nasal sinuses might easily be the contributing or sole cause.

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THE DIAGNOSIS AND TREATMENT OF TOXIC GOITER.*

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We believe with Plummer that toxic goiter should be divided into two groups, the exophthalmic goiter and the toxic adenoma. Inasmuch as the problems of diagnosis and treatment are largely with exophthalmic goiter, more consideration will be given to that type of the disease.

Exophthalmic goiter is a constitutional disease. We must admit that our knowledge of it is still quite limited, and that what we do know is largely limited to the thyroid gland

and the effects of the hyperthyroidism. The course of the disease is well known, it runs in cycles of greater and less intensity and if untreated tends to be self-limited by actual destruction of thyroid tissue. When left to run its own course, however, it takes its toll of high mortality and leaves in its wake great morbidity from the damage to the nervous system and the cardio-vascular-renal systems. It is seen usually in young adults, most often in the early thirties, and is much more frequently found in women than in men. Tremor, tachycardia and nervousness are the early symptoms followed by loss of weight, enlargement of the thyroid gland and exophthalmos.

Toxic adenomatous goiter is also found more frequently in women than in men. They are ten to fifteen years older than the exophthalmic patients and are therefore at an age when the heart, blood vessels and kidneys may already be impaired. They have had adenomatous goiters for many years without symptoms and gradually become nervous, develop tremor, lose weight and usually notice an increase in the size of the formerly quiescent goiter. This form of hyperthyroidism does not run in cycles but tends to become progressively worse. The picture is largely that of hyperthyroidism produced by feeding excessive amounts of thyroid extract, and exophthalmos is never seen in such hyperthyroidism.

Rarely we see a patient with a nodular goiter in the hyperthyroid state with exophthalmos. Broders has found the typical picture of exophthalmic goiter in glands from such patients outside of the areas of adenomata. This seems to explain satisfactorily the discrepancy for there is no reason to suppose that the presence of an adenoma would in any way prevent the development in the same gland of exophthalmic goiter.

We know very little of the cause of hyperthyroidism. We do know that powerful emotions may initiate exophthalmic goiter, and that upper respiratory infections, particularly in the tonsils and the nasal accessory sinuses, have a very decided influence in the onset of the disease. It is very difficult to understand the part played by iodine in the onset of this disease. The lack of iodine cannot be a major item because exophthalmic goiter is almost as frequent in non-goitrous as in goitrous districts, yet the favorable influence of iodine ad-

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ministered in the course of the disease is significant of a vital role.

We may regard the toxic state with an adenomatous goiter as an over-production of thyroid secretion. The diseased gland for years has put out a deficient secretion and the effort on the part of the body to increase the secretion is overdone.

The thyroid pathology of the two types is quite different. In exophthalmic goiter there is a general enlargement of the whole gland. There is a cellular hyperplasia resulting in papillary projections into the acini and a lack of the colloid usually present in the gland. In the later stages there is a marked increase in the fibrous tissue stroma which finally may result in relief of the hyperthyroidism, though the patient in the meanwhile may have been wrecked by the disease. It is interesting to note the different pictures seen in the exophthalmic gland since the administration of iodine to these patients. There is still a marked hyperplasia and increase in the size of the cells, but there is a very considerable amount of colloid present and it appears not unlike the colloid goiter.

The adenoma is a true blastoma. It may be single or multiple; by its growth it impairs the normal thyroid tissue, and finally by hyperplasia of individual cells it forms an excessive amount of thyroid secretion.

The pathology outside of the thyroid gland is much the same in the two types. From the excessive activity of all tissues there is a degeneration of the heart and blood vessels, with the usual effect of such degeneration on the kidneys. There has been no satisfactory explanation of the exophthalmos.

The diagnosis of well-advanced hyperthyroidism, whether due to exophthalmic goiter or toxic adenoma, presents no difficulty. The problem with these cases is to determine the extent of the damage done by the excessive thyroid stimulation to the various tissues of the body, particularly the heart. The cases which are seen early when they are near or on the border line are the ones which require the best judgment before proceeding with treatment. As a rule, the early exophthalmic goiter is more likely to be confusing than the toxic adenoma.

The patient with toxic goiter may present a group of symptoms so numerous as to confuse the student of the disease. Many of these

symptoms are quite constant among patients afflicted with hyperthyroidism, but most of them are not reliable and may be considered lightly. I refer to such vasomotor disturbances as excessive sweating and flushing of the skin, the diarrhea and the painful extremities. The diagnosis depends, in the final analysis, on the six cardinal symptoms and signs, namely, nervousness, tremor, loss of weight, tachycardia, exophthalmos and goiter.

The first of these symptoms is of a very indefinite nature; a large proportion of sick people will call themselves nervous and many may appear even as having hyperthyroidism. The nervousness of true hyperthyroidism, however, is violent in nature; the patient has the fidgets constantly to such an extent that the perpetual motion of the arms and legs, especially when the patient is confined to bed, will chafe the skin of the elbows and knees even to ulceration.

The tremor is also difficult to evaluate, but when the fingers are extended the true tremor appears as a rapid motion with short excursion, usually in a lateral direction. The tremor of the exophthalmic patient is more constant than that of the toxic adenoma.

Loss of weight is more definite; we consider it to mean a decrease of at least 5 per cent of the body weight.

Tachycardia can also be expressed in figures. The pulse rate should be considered only with the patient completely at rest, and to be significant it should be 90 or more to the minute.

Exophthalmos is usually easily distinguished from normally prominent eyes; the opinion of the patient or her relatives should be given consideration. It is further confirmed by widening of the palpebral fissure, lagging of the upper lids on excursion of the eyes, and failure of the eyes to converge for near vision.

The presence of goiter is a positive sign and is confused only by the fullness or the prominence of the gland in thin females. The goiter of the exophthalmic type is frequently not large but it is almost always quite firm to feel. The adenomatous goiter is usually larger and nodular.

The study of a case with regard to thyroid function is, of course, now, incomplete without the determination of the basal metabolic rate. We now have records of 3,000 tests on about 2,000 patients, and I feel safe in asserting that it is rare that the result of the test

is used as a deciding factor in the positive diagnosis of hyperthyroidism. I do not intend to convey the impression that it is not useful, for as a confirmation of our clinical observations it is most helpful and at times it is an important factor in ruling out the hyperthyroid state. The close relation of the basal metabolic rate to the basal pulse rate is quite striking. This test is further very useful in determining the course of the disease both as to the stage of the hyperthyroidism and the result of treatment.

The test is useful only when done by a well trained individual, and even then the result of a single test should be given weight only when it is in line with the clinical picture. A presentation of the technical difficulties and sources of error has no place in this discussion. I will only remind you that in the apparatus in general use a loss of gas through leakage gives a high rate, while gas added to the respiratory chamber gives a low rate. Manifestly it is easy to lose gas through a leaking machine, so that the common error is to get a rate too high. It is almost impossible to add gas to the chamber, so that the rate is practically never too low. We believe that no case of true toxic goiter can have a normal basal metabolic rate, and we feel no hesitation in ruling out hyperthyroidism when the test properly and repeatedly done gives a normal rate. On the other hand, repeated elevated tests may leave us still in great doubt of the existence of hyperthyroidism.

On account of the many factors which may make a rate higher than it should be, we believe that for practical consideration the upper limit of normal should be above the usual plus 10. We, therefore, do not consider rates between plus 10 and plus 20 as being of clinical significance.

The cases which require the greatest care are the early or border-line exophthalmic goiters and those early or late with other pathology coincident with or due to the hyperthyroidism.

To make the diagnosis of exophthalmic goiter it is not necessary to have present all of the six cardinal symptoms and signs; we feel certain, however, that there must be definitely present either goiter or exophthalmos in addition to the other symptoms. Perhaps 40 per cent of the cases of exophthalmic goiter seen in the average clinic will not have any pro-

trusion of the eyes but there must be a definite goiter. So, occasionally, there may be no thyroid enlargement but definite exophthalmos. I have operated on two patients with this combination and the diagnoses were confirmed by the basal metabolic rate, by the pathological examination of the removed tissue, and by the clinical improvement of the patient after operation. Doubtless there is a very early stage of the disease when neither exophthalmos nor goiter is present. I believe that we should not make a positive diagnosis at this time, though non-operative treatment may be begun. When the diagnosis is in any way doubtful, operation should not be done. In my experience, the best results have been with patients who had the disease in unmistakable form.

It is not the purpose of this paper to discuss or compare the various modes of treatment for toxic goiter. It is my belief that the greatest benefit to these patients comes from the surgical removal of the major portion of the thyroid gland. X-ray treatment certainly has some effect on the gland. The results I believe from this treatment are poor compared to those obtained by surgery. In a limited field, X-ray serves a very useful purpose, as will be indicated later.

While I believe that the greatest relief comes from the surgical removal of the gland, I do not wish to convey the impression that it is purely a surgical problem. On the contrary, the co-operation of a competent medical associate is most important, not only before the operation but for a period of months after the operation.

The casual relation of upper respiratory infection to exophthalmic goiter has been mentioned. Certain very early cases may be entirely relieved by removal of such infection and this may be aided by X-ray treatment. We have had two cases which illustrate this state of affairs. Both were young women presenting early symptoms and signs of exophthalmic goiter. One had badly infected tonsils and the other empyema of the antrum of Highmore; they were entirely relieved by eradication of the infection, followed by rest over a period of several months.

Perhaps the most important part of the surgical treatment from the standpoint of mortality is the preparation before operation. The patient should be put at rest as completely as possible by confinement to bed in the hos-

pital. Excitements of all kinds are avoided and the confidence of the patient in the success of the treatment is encouraged. These people have been sick and harassed; they are nervous and frightened in their new surroundings, and yet it is remarkable how soon their attitudes change, and from a state of fear of the approaching operation they change to one of impatience to have it over. They should have an abundance of good food and water, and an occasional sedative is needed to encourage sleep. An ice-bag over the heart seems to add to their comfort.

The use of iodine in this period was advocated first in this country by Plummer. It is a curious contrast to the teaching of only a few years ago, and is a good example of the instability of medical opinion. It is administered in the form of Lugol's solution, and the dose varies from fifteen to forty drops a day. This introduction of iodine seems to induce a remission of the disease with an improvement in the whole condition of the patient. We use iodine only for the exophthalmic type, but, in view of the possibility of the mixed type of gland, we do not hesitate to use it when in doubt with the nodular goiter. We believe that iodine given to a patient with non-toxic adenoma may have a very positive effect on inducing the hyperthyroid state, but when that condition is established we do not regard the administration over a short period as harmful.

It is quite significant that in recent years when the use of iodine has become so widespread as to be placed in table salt and even in the water supply of large cities, that there is an apparent increase in the number of cases of toxic adenoma.

The administration of iodine to a patient with exophthalmic goiter will induce a remission of the disease but it will not cure it, and when once such a remission is secured by its use it will not succeed so well again. It is, therefore, very unfortunate that its use has become so general, because the patient who comes to operation, after the use of iodine has failed to cure the disease, has lost the beneficial effect of one of the major measures of preparation.

Formerly we were inclined to use digitalis rather frequently with patients whose pulse rate remained rapid in spite of rest in bed even though no signs of decompensation were pres-

ent. Now we have revised this procedure and use the drug only when there are positive signs of a failing circulation.

It seems wise in a very few cases to "steal" the gland with the patient unaware, so dummy hypodermics and "inhalation treatments" are given them until the selected time arrives when morphine and the anesthetic are given and the operation is done in the patient's room.

Many surgeons have advocated ligation of one or more of the thyroid arteries preliminary to the actual removal of the gland, but since the introduction of Lugol's solution in the pre-operative treatment the number of ligations has been greatly reduced.

The preliminary period in the hospital varies from a few days to several weeks. The operation should not be done until there is a well-marked drop in the pulse rate, nervousness and metabolic rate.

With the adenomatous gland the operation consists in removing the tumors as far as possible, while, with the exophthalmic gland, we remove all of the gland except a small piece on either side consisting of the inner and posterior portions of each lobe.

The choice of the anesthetic is important. I prefer novocaine infiltration alone when the patient is co-operative and pain is slight. Should the patient become frightened or suffer severe pain, a small amount of nitrous oxide gas can be given.

There are a number of complications which may result from this operation, the most important are injury to the recurrent laryngeal nerve, failure of the heart, hemorrhage and acute hyperthyroidism.

Injury to the recurrent laryngeal nerve is avoided by leaving the posterior portion of each lobe and by great care in placing the clamps on the dislocated inferior pole. If the operation is done with local anesthesia, any manipulation of the nerve is immediately recognized by a spasm of coughing, and even with general anesthetic a well-trained team will recognize respiratory changes if the nerve is traumatized. It is in operating on recurrent goiters that the danger of injury to the nerves is greatest, because the gland so adheres to the surrounding structures that gentle manipulation is impossible.

Failure of the heart in advanced cases, where the heart muscle has reached nearly its

limit of exertion, is a grave danger. I believe that such a case is better handled under general anesthesia unless the operation is approached by the patient with a comparatively calm mind. I do not hesitate to send a patient back to bed from the operating room if the excitement is great; the training is a valuable lesson, and the next approach in a few days will be much improved. Removal of only one lobe at a time is a safer procedure with some patients.

After the operation, in spite of the most careful technique, some patients will have a hemorrhage which, retained under the muscles, will cause collapse of the trachea. I have observed this complication three times in about 700 operations for goiter. All of these patients were revived by prompt treatment. The wound should be immediately opened, the clot emptied out and the respiration stimulated by artificial methods, and the bleeding may then be stopped.

The most frequent complication following operation and perhaps the most frequent cause of a fatal termination is acute hyperthyroidism. The post-operative treatment of all cases is designed to combat this condition because all of them have it to a more or less degree. It is usually over in forty-eight hours but this short time may be a hectic one.

When the patient is returned to bed fluids are given immediately by rectum or under the skin according to the severity of the case. We add Lugol's Solution to the fluid given by rectum. An ice-bag is placed over the heart and if the condition of the patient demands it, numerous ice-bags are packed about the body. Water is given freely by mouth and the next day Lugol's Solution. Morphine should be given freely and the patient kept as quiet as possible. When the reaction is severe we give 10 per cent glucose solution intravenously with appropriate doses of insulin. This glucose solution furnishes the fluid required by the body and gives a food ready for immediate use to the organism which is being consumed by the excessive stimulation.

Fortunately the crisis is soon passed, and after about a week or ten days in bed the patient is anxious to leave the hospital.

Considering the severity of the average case of toxic goiter the operative mortality is remarkably low. It is variously reported at from 0.5 per cent to 5 per cent. We have had

a mortality of 3 per cent. Practically all the deaths can be accounted for by marked degeneration of the heart although occasionally one will die from some catastrophe.

The prognosis in both types is good. The toxic adenoma will be entirely cured of the hyperthyroidism but the general condition of the patient will depend on the damage done to the vital organs before operation.

We have recently had reports from sixty-seven patients who had been operated on for exophthalmic goiter six months or more ago, fifty-one of these patients (76 per cent) were symptom free and considered themselves well, thirteen (19 per cent) had definite complaints such as nervousness, tachycardia or failure to gain weight; four of the thirteen had hypothyroid symptoms and one of these was markedly myxedematous. These four patients were relieved by thyroid extract. Three patients died from cardiac failure a few months after leaving the hospital. We believe with Tinker that residual symptoms are due to failure on the part of the operator to remove a sufficient amount of the gland. A certain number will have definite recurrence of the disease, I should say it will not be more than 1 per cent.

We have no more spectacular results and no more grateful patients than those who have been operated on for toxic goiter.

THE DIAGNOSIS AND TREATMENT OF CONDITIONS COMMONLY SEEN IN THE THROAT.*

By MORTIMER H. WILLIAMS, M. D., Roanoke, Va.

No doubt many of you, when you read the title of my paper, felt that you were in for another lengthy discourse on the tonsils and the indication for their removal; the literature of which has been both voluminous and adequate. But such is not the case, for I am sure I could add very little to that subject, which has been so extensively considered in recent years by both the essayist and surgeon. Neither is it the object of this paper to add any new surgical knowledge nor settle any disputed points of technique, but rather to bring to mind in a general way some conditions other than tonsillitis that we commonly see in the throat.

Since the recent world war we have been seeing and hearing more and more of Vincent's angina, or trench mouth, which is an acute

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infectious disease, presumably due to the combined action of a spirochaete and a fusiform bacillus, and is characterized clinically by inflammation and the formation of ulcerated lesions located primarily on the mucous membrane of the gums, cheeks, tongue or tonsils. When these lesions are around the teeth, there is usually considerable bleeding from the gums; when on the tonsil, the ulceration is frequently covered with a grayish exudate or membrane, and the adjacent lymph nodes are enlarged. This infection may assume serious proportions and cause much suffering. Important vessels may become eroded and hemorrhage may follow. Considerable destruction of tissue may occur. The constitutional disturbance varies with the severity of the infection. The vitality of the teeth may become subsequently impaired. There are cases on record where osteomyelitis of the alveolar processes has occurred as a complication.

Bronchial spirochetosis is a grave malady which may follow this condition, sometimes terminating fatally. It is certain that, once the disease is established, energetic treatment is demanded.

Until about three years ago, I treated Vincent's with almost every conceivable substance mentioned in text-books, with uniformly slow recovery and relief of pain. I would start by prescribing a gargle and applying silver nitrate to the lesion; then trichloroacetic acid, and, finally, when the condition would not respond to this, I would refer to a G. U. man for sulpharsphenamine. In some cases the disease would clear up like magic after one or two injections, while in others there would be no appreciable improvement. I have even removed the tonsils with large crater-like ulcers in them in an effort to clear up the condition, although I felt at the time that it was not good surgery.

About three years ago I read of sodium perborate being used in the treatment of Vincent's, and began using it with splendid success, and I now firmly believe that it is an absolute specific both as a prophylactic and a curative. It is usually prescribed as a powder—two teaspoonfuls dissolved in a glass of warm water makes a saturated solution—and in the treatment should be used frequently as a mouth wash and gargle. The perborate of soda splits up in the mouth, forming nascent peroxide of hydrogen. The teeth should be brushed several times a day, using the powder

as a dentifrice. It makes a good lather, cleans the teeth, and rapidly clears up the lesions in the gums. Where the tonsils are involved, the powder should be applied directly, and is best done by wrapping a piece of cotton around the end of an applicator, and dipping first in water and then in the powder, thus making a paste, which readily adheres to the tissues when applied to the neurotic areas. This treatment is remarkable in cases suffering with severe pain, for, after its application, the pain is relieved almost immediately, and in a short time the patient is well. I believe that if one would keep on hand a little sodium perborate, and use it occasionally in cleaning the teeth, they would never be bothered with trench mouth.

In the diagnosis of Vincent's, the lesions about the alveolar processes and the frequent bleeding from the gums is strongly suggestive, while it is made certain by taking smears from the exudate, which will be seen to contain innumerable organisms of two types, the spirilla and long fusiform bacilli.

Vincent's of the throat clinically may readily be confused with syphilis. According to Posey, extragenital chancres constitute about 5 per cent of all primary lesions, and of these 60 per cent occur in the mouth.

The common occurrence of chancre on the lips and tongue obviously depends on the great frequency of exposure of these parts, and the presence here of breaks in the epithelium which allows infection to enter. I believe that kissing is the most common source of extragenital chancre. Schamberg reports the case of a man with chancre of the tongue who attended a dance and kissed and infected eight girls in one evening (a pretty good average).

The chancre, whether it occurs on the lip, tongue or tonsil, closely resembles the genital chancre. Usually it is an eroded open lesion, with an indolent surface, covered with a thin grayish-yellow exudate, which, when wiped off, leaves a red, ecchymotic, weeping surface, does not bleed easily—but has a serous discharge loaded with spirochaetes. The lesion is practically painless—a most important point in diagnosis. In cases of chancre of the tongue and throat—where the diagnosis is suspected, and is made certain by referring the case to some one who does dark field illumination tests—with energetic, specific treatment, the condition can be cleared up before the Wassermann becomes positive.

Chancre of the tongue usually occurs on the dorsum, and is not painful. It must be differentiated from simple ulcers, which are more painful; from tubercular ulcer, which is extremely painful, more rare, and occurs usually along the edges or ventral surface of the tongue; and from carcinoma, which develops more slowly, bleeds freely, and is painful. Chancre of the tonsil is rather common, and at first resembles an ordinary angina, though it is usually unilateral, and after a few days may appear to be punched out and ulcerated. It may be covered with a thick grayish exudate and there is often extensive surrounding edema. The lymphatic glands below the angle of the jaw are usually markedly enlarged and painless, and there is more swelling in the adjacent lymph glands than would occur from non-syphilitic lesions of similar size. When a patient walks in your office complaining of difficult swallowing and a feeling of fullness in the throat, and on examination the throat is seen to be markedly inflamed and the contiguous lymph glands are enlarged but accompanied by very little pain, you can put it down as syphilis, for there is no other condition that will show so much inflammation and swelling in the throat without excruciating pain.

Sometime in the past year in our office, in a single week we saw three cases of syphilis of the mouth, one chancre of the tongue, one chancre of the tonsils, and one of mucous patches on the tonsils. The mucous patch is the most frequent form of secondary syphilis seen in the throat. It is the prototype of the secondary skin eruption, the papule, and occurs with them.

Mucous patches are superficial erosions or shallow ulcers, seldom attaining any depth except on the tonsil. They are found in any part of the mouth, pharynx or fauces. They may be covered with a thin exudate which is full of spirochaetes. Mucous patches usually cause the patient little discomfort and may even escape his notice, and this makes them all the more dangerous as they are highly infectious.

Mucous patches respond promptly to general specific medication, or disappear spontaneously during the progress of the general disease, and as a rule leave no tell-tale scar.

Both Vincent's and syphilis of the throat, when observed clinically, may be confused with diphtheria, as all three conditions may show

a very similar exudate closely resembling a membrane. The temperature and prostration in diphtheria are usually suggestive, while a smear from the exudate in 90 to 95 per cent of cases will show the characteristic Klebs-Loeffler bacillus.

In any severe acute inflammatory condition of the throat we should always make a smear for microscopical study, and if you are practicing in the country and are too busy or have not the laboratory equipment for staining and examining smears, make your smear anyhow, fix it, put it in an envelope, give it to some one passing in an automobile, and tell them to leave it at the nearest hospital. In an hour or two at the most, the technician can phone you with what organism you are dealing. If diphtheria is suspected, make a culture at the same time. At least 90 per cent of cases of diphtheria can be diagnosed from the smear with the microscope. This gives us a twenty-four hour start over the culture in the administration of antitoxin, and in many cases will mean the saving of life.

The importance of this procedure was impressed on me when a medical student by the sad experience of one of my instructors, who was undoubtedly one of the best pathologists in Baltimore city, and a splendid internist. One morning just before leaving the city for a vacation he was called to see the daughter of one of his dearest friends, an only child, who was complaining of sore throat. He made a hasty examination, saw the throat was inflamed, pronounced it tonsillitis, prescribed a gargle, and left town. A week or ten days later, when he returned, he found to his great surprise that this girl of about sixteen years of age had died of diphtheria during his absence. He expressed it as being one of the greatest tragedies of his life. Had he only stopped a few minutes to have made a smear or culture, no doubt he would have made the correct diagnosis.

Diphtheria in the adult is comparatively rare, while Vincent's and syphilis of the throat are seldom seen in children.

From 80 to 85 per cent of all cases of diphtheria, as well as deaths from the disease, occur in children under six years of age. One reason so many deaths occur is because we are waiting to hear from the culture when we should be administering antitoxin.

Until the past three or four years there have been annually from 150,000 to 200,000 cases of

diphtheria in the United States, with a mortality of twenty to twenty-five thousand. Since the discovery of antitoxin the mortality has dropped from 45 to about 10 per cent.

Since the discovery by Park of toxin-antitoxin, the incidence of diphtheria has been wonderfully reduced. In my opinion it is one of the greatest medical contributions of the past decade. For some reason its administration has not been accepted or advocated by the profession as a whole, although in many of our largest cities, by active campaigns on the part of the health departments, toxin-antitoxin inoculation has reduced the number of cases of diphtheria 70 to 75 per cent in a single year. I sincerely hope that the time is not far distant when all physicians will recommend the administration of toxin-antitoxin, as they now do vaccination against smallpox,—and when that time comes, I believe that this treacherous disease, which stifles the life out of so many little ones, will be as readily controlled.

Shenandoah Life Building.

SYMPATHETIC IRIDOCYCLITIS NOT A MYTH.

Report of Two Cases of Non-Foreign Body Origin.

By V. K. HART, M. D., Statesville, N. C.

Sympathetic iridocyclitis must be sharply differentiated from sympathetic irritation. In this latter condition there may be photophobia, some impairment of accommodation or vision; even some contraction of the fields. However, there is never any evidence of involvement of the internal structures of the good eye as indicated by pericorneal injection, punctate deposits on the posterior cornea, hazy media, retinal changes, etc.

Moreover, clinically sympathetic iridocyclitis may be divided into two classes.¹ 1. Serous. 2. Plastic or malignant. This latter type usually leads to destruction of vision.

The first case presented below was of the serous type. It is of interest because of the long period of time elapsing between the injury to the exciting eye and the appearance of symptoms in the sympathizing eye (twenty years).

CASE No. 1. The patient, a male age thirty-two years, first came under observation February 6, 1927. Chief complaint, inflamed left eye. Stated he was struck in this eye with a stick when twelve years of age. Since then has

had two previous attacks of same type of trouble in the affected eye, but both disappeared without treatment. Has been a sufferer from asthma for ten years. Malaria four years ago. Rest of history entirely negative.

Examination showed vision of left eye reduced to light perception and gross objects. There was evidence of adhesions between iris and lens though pupil was not occluded. Marked circumcorneal injection, a posterior polar opacity, vitreous opacities and several retinal scars above and to nasal side of the nerve completed the objective findings. Examination of the right eye was negative. X-ray for foreign body negative. Kahn and Wassermann negative.

Course: He was put under the usual therapeutic measures and during the following week the eye improved. Shortly thereafter he disappeared from observation.

On April 14, 1927, the writer was called in consultation at the home by the family doctor. There was some swelling of the lids and edema of the ocular conjunctiva of *both* eyes. Questioning brought out the fact that the family doctor had prescribed atropin for both eyes several times daily. Consequently the conjunctival and lid manifestations were interpreted as an atropin conjunctivitis. Moreover, vision was good in the right eye and there were no intra-ocular findings. The drug was discontinued at once and the eyes improved very much. A sympathetic involvement was not at this time suspected.

On April 18, 1927, the patient was again seen at the home. There was still a great deal of edema of the ocular conjunctiva of the right eye, which made the determination of true ciliary injection very difficult. A sympathetic involvement was now suspected and removal to the hospital urged at once for study.

The fields for the right eye were found definitely contracted for motion and colors although no scotomata were demonstrated. A retinoscopy showed only a diopter of hyperopia with a one-fourth diopter of astigmatism @ 90. Nevertheless at the trial case his vision was: S plus 1.00 cyl. plus .25 @ 90 equals 20/80. Such a marked diminution of vision could hardly be due merely to "irritation". There were no intra-ocular findings except a hyperemic nerve head. *Tension:* O. D. 14; O. S. 12 (Schiotz tonometer). There were never punctate deposits on the cornea of either

eye (descemetitis). *Diagnosis:* Sympathetic, serous iridocyclitis, right.

The left eye was, therefore, at once removed under general anesthesia. Recovery from operation was uneventful.

Energetic therapy was instituted to save the right eye. Such consisted of daily mercurial inunctions and pilocarpine sweats, saline laxatives, salicylates and foreign protein in ascending doses intramuscularly (whole milk). With respect to the latter it was noted by taking a blood count before and after an inoculation that the W. B. C. was only increased about 1,500 by the same. Locally the pupil was kept will dilated, the tension being carefully watched. Highest tension recorded was 22 (Schiotz tonometer). The eye was kept covered and hot compresses used fourth hour.

With such therapy the edema promptly subsided. Then, and only then, was a well defined ciliary injection demonstrable. It is interesting to note that a culture of the right conjunctival sac during the edema showed only staphylococcus aureus.

The patient was discharged as well April 30, 1927. The fields and vision were normal.

CASE No. 2. A boy, age 12 years, was struck in left eye with piece of flying nail nearly four months ago. Mother did not think it necessary to take him to a doctor until three months later and only then because the good eye had become involved. Insists both eyes good before accident and denies any previous trouble. Rest of history of no importance.

Examination: Near inner cornea, left, is old scar with adherent iris. Deep circumcorneal injection. Pupil completely occluded with inflammatory exudate. Iris discolored with areas of degeneration and marked atrophy. The right eye (sympathizing) presented exactly the same picture with the exception of the scar on the cornea. In other words there was a plastic iridocyclitis of both eyes. The rest of the physical examination was negative. Kahn and Wassermann negative. X-ray for foreign body negative.

Course: Left eye was enucleated. Iridectomy done, right. Same general measures instituted as on Case 1. Response very discouraging. Two weeks later the iridectomy opening was completely closed by inflammatory exudate and it was necessary to do a second iridectomy because of a complicating glaucoma. Despite the same the tension remained

moderately elevated (32-43 Schiotz tonometer).

It is interesting to note that a culture of the vitreous of the enucleated eye immediately after removal was sterile.

Sections of the same eye showed the usual inflammatory reactions of the internal structures *but no organisms*.

After several months of treatment the end result was very poor. There was slight elevation of tension with no subjective symptoms. The previous iridectomies left a small opening, partially filled with inflammatory exudate and through which there was only light perception. A mild, chronic iridocyclitis persists which will probably eventually necessitate enucleation.

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Miscellaneous

Clinical Laboratory Service in the United States.

For the information of our readers, we publish the following statement by the Council on Medical Education and Hospitals, of the American Medical Association, received from the secretary of that council, Dr. N. P. Colwell:

During the last decade there has been much discussion in medical and laboratory journals and particularly on the platform of medical and laboratory conventions, regarding the status of the clinical laboratories of the country. Especially it was regretted that the practice of clinical pathology, regarded as one of the medical specialties, had fallen into disrepute. The fact was lamented that the laboratory work had fallen into the hands of lay technicians and become the toy of persons who had a purely commercial point of view and very little training for the work. Much disgust and quite a strong note of despair was sounded by those few members of the medical profession who had championed the cause of clinical pathology and had adopted that specialty as a life work.

Many letters were received at the office of the American Medical Association from practitioners of pathology and leaders in medicine, regretting the drift toward lay commer-

cialism, and urging that something be done to counteract it. What to do about it was a question. Organizations of chemists were interested because some of their members ran laboratories. Likewise organizations of clinical pathologists, bacteriologists, and of the medical profession were equally interested. Some of these organizations working alone undertook to investigate and to standardize the practice of clinical pathology, hoping to check the drift of that practice into the hands of technicians and restore it to its rightful place as a medical specialty.

The efforts of those organizations working single handed were of little or no avail except to emphasize the enormity of the task and the necessity for cooperation.

COOPERATION EFFECTED IN 1923.

The necessary cooperation of the laboratory and medical organizations was brought about in 1923 at the annual meeting of the American Medical Association in San Francisco. At that time, delegates sent by the American Chemical Society and the American Association of Pathologists and Bacteriologists separately petitioned the American Medical Association to establish some supervision over clinical laboratories. This led to the appointment of three committees representing the American Chemical Society, the American Association of Pathologists and Bacteriologists, and the council on Medical Education and Hospitals. At a joint meeting of these committees in Chicago early in 1924, after much deliberation, certain basic principles underlying sound laboratory service were agreed upon which stressed especially a qualified bona fide director as the prime essential. The joint committee agreed that the work could best be conducted by the Council on Medical Education and Hospitals.

The first steps were: (a) to secure a complete list of laboratories in the country; (b) the preparation of a schedule of essentials in an approved clinical laboratory, and (c) the preparation of a questionnaire by which the essential facts regarding each laboratory could be obtained. Each of these measures was carried out with the advice and cooperation of fifty or more clinicians and others expert in laboratory work, including the committeemen of the above-named organizations, and by the officers of the American Society of Clinical

Pathologists which very early showed an interest and from which the Council has received a hearty cooperation.

After being revised and adopted by all parties interested, the questionnaire was mailed to all the laboratories of the country and a most hearty response was received. A complete report of the survey, "Essentials of an approved Clinical Laboratory," and a preliminary list of laboratories which appeared to be fully complying with those "Essentials," were published in the Hospital Number of the Journal for April 3, 1926. The facts as published were submitted to the House of Delegates of the American Medical Association at the Dallas session in 1926 and approved by that body.

To assist in giving as fair consideration as possible to each application for approval, a strong committee of laboratory experts was formed in every state or section of the country. Those committees aggregate one hundred and twenty individuals representing, as equally as possible, the co-operating organizations and hence the interests of the laboratory profession. Under the direction of the Council, each committeeman makes his investigation and renders his report or advice independently of other committeemen in the same district.

At the present time, of the three hundred and fourteen laboratories that have reported, one hundred and fifty-one, after careful investigation, have been placed on the approved list and other applications for approval are constantly being received.

The Council lends all possible assistance to laboratories whereby they may become eligible for admission to the accepted list. Every laboratory that makes a report and signifies a desire to conform to the requirements, is informed in regard to any deficiencies. The spirit of this movement all the way through is constructive. Anyone who knows the condition of the laboratory field at the time this survey was begun, would not expect very telling or spectacular results to be shown by this time; nevertheless, there are ample reasons for believing that actual improvements are being made: (1) A number of laboratories formerly run by technicians and only nominally under "medical" directors, have come under the ownership and actual control of clinical pathologists of high professional standing

and ripe experience; (2) a number of laboratories under the control of technicians have gone out of business; (3) the "Essentials" have been published repeatedly and thus brought to the attention of all persons working in the field of clinical pathology; (4) there is an increased demand for pathologists to man the clinical laboratories of the country; (5) the director of the Mayo Foundation says that the salaries offered the pathological graduates of the Foundation are double those offered to other graduates of the Foundation; (6) the feeling of unsteadiness indicated in the discussion of a few years ago has subsided to a considerable degree, and there is a more hopeful attitude on the part of the clinical pathologists themselves.

FUTURE OUTLOOK.

The movement is still in its beginning, but a good start has been made. To what extent doctors have actually discontinued sending specimens to unapproved laboratories and are sending them to approved laboratories is not known. The educational results, however, are becoming increasingly evident. In order to secure the best analyses for the benefit of their patients as well as to best conserve the interests of the medical profession, physicians should refuse to have their work done at laboratories conducted under the direction of non-medical individuals. Much depends, also, on the continued hearty support of the various organizations and individuals who operate in the laboratory field. That this is already assured is indicated by the promptness with which laboratories are filling out and returning the form that has recently been mailed out by the Council on Medical Education and Hospitals for a complete and needed resurvey of laboratory service. The resulting data from this survey, will be published for the benefit of all. Of course, any laboratories that are not yet on the list, will be promptly considered for approval, if they express such a desire.

Sketch of Sadie Heath Cabaniss—A Pioneer Nurse in Virginia.*

Miss Sadie Heath Cabaniss was veritably the "lady with the lamp," the Florence Nightingale of her native state, the pioneer in the

field of nursing, who held high the torch of professional standards and ideals, and with a vision like to that of her famous predecessor, recognized the needs of the people, and met them as far as skill, tact, and executive ability could make it possible.

She was born in Petersburg, Virginia, daughter of Charles J. Cabaniss and Virginia E. Heath, into a heritage of the culture and refinement with which she was so richly imbued. Her early childhood was spent at the ancestral home "Bothwell," in Dinwiddie County. Her father was a lawyer by profession, but retired from active practice before middle life on account of frail health. He was an indefatigable student, a finished classical scholar; in writing of him she says, "He had old-fashioned ideas of cultivating literary taste and mental development, hence very little fiction and other light literature were allowed me, until as a nurse, I read them as a diversion when the responsibility for the lives, as well as the mental and physical sufferings of my patients, weighed on my mind to a most trying and discouraging degree."

Miss Cabaniss was a good Latin scholar, read French and German easily, and spoke German fluently. She graduated from Mt. Pisgah Academy, in King William County, at the age of sixteen, and later attended St. Timothy's School, in Catonsville, Maryland, under the Misses Carter. She taught for awhile, but as she expressed it, "a life-long determination to study nursing" decided her to enter training. Johns Hopkins Hospital was her choice, with Isabel Hampton as superintendent. Under such guidance, associated with such men as Dr. Osler, Dr. Thayer, Dr. Halsted, and others, and with such co-workers as Miss Nutting and Miss Nevins, she absorbed the best that was to be had.

After graduation, she held the position of night superintendent there until 1894, when a call came from the Medical College of Virginia to the Johns Hopkins Hospital to send them a nurse to take charge of the operating room of the Old Dominion Hospital, in Richmond, which stood where St. Philip Hospital now stands. They sent Miss Cabaniss and, determined to give the best she had to her own state, she brought to her task all the ardent enthusiasm and patriotism of her nature. The Old Dominion Hospital was un-

*Prepared by Miss Nannie J. Minor, R. N., but read by Miss Elizabeth Webb, R. N., at the exercises incident to the laying of the corner-stone of Cabaniss Hall of the Medical College of Virginia, Richmond, on January 20, 1928.

der the care of the Catholic Sisters, but her duties as clinic Nurse often brought her from the operating room into the wards. So much impressed were the doctors with her organizing ability, that they decided at the end of six months to reorganize the hospital and put her in charge of developing a training school according to the Nightingale method of nursing education. A few pupils were already in the hospital, and with these as a nucleus, she organized her training school; the first graduating class, in 1897, had nine nurses.

She was a rigid disciplinarian, as all the early leaders were. She was courageous and determined where she thought her duty lay, but shy and retiring as an individual. Lovely and refined in appearance, and possessed with an unusually magnetic personality, she also showed a strength of character that impressed itself upon all with whom she came in close contact; and there are still many who "rise up and call her blessed."

The hospital building was old and inconvenient, but the superintendent's spirit was so indomitable in its determination to overcome difficulties, that her pupils could not fail to catch some of it. Patients and duty came first always, self was put far in the background. As hospital accommodations were very limited, and for some time the demands for beds so far exceeded the supply, it was often necessary to return patients to their homes as soon as they could be moved, and send the pupil nurses there to continue the treatments or dressings as long as the doctor thought necessary. This was especially the case with the ward patients, and the student nurses were given many opportunities of seeing "how the other half lives."

Always on the alert to relieve suffering, it was brought to the attention of Miss Cabaniss that at the Soldiers' Home there was no way to give skilled nursing care to the "Old Vets" when they became ill, so an arrangement was made to supply a nurse from the hospital when need arose. The Sheltering Arms Free Hospital nearby was having a struggling time; Miss Cabaniss offered her services to the board of that hospital, and arranged to have one or more of the pupil nurses always on duty there. The president of that board, in writing of that arrangement, says: "Miss Cabaniss was so kind and tactful as to say that she not only

desired to help, but that the experience her nurses would get at the Sheltering Arms would be helpful to them, because there was a greater variety of patients. She supervised this hospital for several years, and the relations were severed only when her Hospital and Training School grew so large that she deemed it unwise to continue to supervise both hospitals."

Another outstanding experience was in 1898, the year of the Spanish-American war, when an epidemic of measles broke out among the soldiers in camp near Richmond. The Medical College threw open the college building for the sick, and the organizing powers of Miss Cabaniss were taxed to the utmost in arranging for the necessary nursing care. Again, on their return from the war, when an epidemic of typhoid made assistance necessary, the house standing on this spot was used to house the typhoid patients who were cared for under her supervision. It was a very interesting, but many times a very tragic experience.

Five classes of nurses were graduated under her from the Old Dominion Hospital. The fourth class (1900), consisting of seven nurses, became so deeply interested in the follow-up work in the homes of the poor, that the whole group determined to devote themselves to this work on graduation. This met with Miss Cabaniss' approval and sympathy, as she too had determined ultimately to devote her life among the poor. With the work of the Nurses' Settlement, in New York, under Miss Lillian Wald as the inspiration, she and this group of nurses and a few outside friends, organized in 1900 and secured a charter for the Nurses' Settlement of Richmond. Many phases of work for civic betterment have developed from her work in this settlement: the Instructive Visiting Nurses Association, School Nursing, Tuberculosis Nursing, the Crippled Children's Clinic, the Probation Officer for Juvenile Court, also similar organizations in other places, and finally rural public health nursing in Virginia.

Miss Cabaniss resigned from the Old Dominion Hospital in the spring of 1901, came into residence at the Nurses' Settlement in the fall of that same year, and was the director for nine years.

With the welfare of her profession always at heart, Miss Cabaniss interested herself early in inducing the various training schools for

nurses to organize their graduates into local Alumnae Association, which later came together to form the Graduate Nurses Association of Virginia; Miss Cabaniss was elected first president, held the position for five years, and later was elected honorary president. The first work of the Graduate Nurses Association was to frame a law to regulate the practice of nursing in the state, and in 1903 the law was passed, thus enabling Virginia to share with North Carolina and New Jersey the honor of being one of the first three states to require the registration of nurses. A board of Nurse Examiners was named by the Governor; Miss Cabaniss was one of these examiners and was chairman of the board for nine years.

In 1909 Miss Cabaniss resigned from the directorship of the Instructive Visiting Nurses Association, in Richmond, and became the first rural nurse in the state. Her field was in Hanover County, in the neighborhood of Oakland, the Page home. She lived in the home endowed for a district nurse by Thomas Nelson Page and his wife, as a memorial to his mother.

In her second year of service there Miss Cabaniss sustained a severe illness, which necessitated her abandoning all work for a period of three years. Upon her recovery she served for about six months with the North Carolina State Department of Health. Later, in 1915, she went to Florida to establish public health nursing in St. Augustine, and while there developed a settlement somewhat on the plan of the Nurses Settlement in Richmond. In 1918, being anxious to do what she could to help in those days of stress, she resigned her duties in Florida and went as public health nurse to Port Wentworth, near Savannah, and served in the shipyards there for several months. She then returned to Virginia, and because of her keen interest in the rural sections, took the position of public health nurse in a restricted section of Westmoreland County, selecting this particular section because of the proximity of a friend to whom she was very devoted. Always she worked beyond her strength, her indomitable will keeping her going, but this last task proved too much for her frail body, and a breakdown came, which resulted in her death in July, 1921.

In no better way can the achievements of

this great woman be summed up than in the beautiful notice of her which appeared in the *News Leader* at the time of her death, an extract from which is copied:

"First superintendent in the present sense of the word in a Richmond hospital, prime mover in the establishment of the Nurses' Settlement, and thereby of the I. V. N. A.; in the fore of those who procured professional recognition for the trained nurses of Virginia; leader in the organization of the State Association of Graduate Nurses; early in the field as a rural public health nurse, indomitable idealist, social prophet—who can fail to place this wonderful woman among the great pioneers of the commonwealth?"

Public Warned to Guard Against Tularemia.

Tularemia, a serious and often fatal disease known also as "rabbit fever" or "deer-fly fever," has spread so widely that Paul G. Redington, chief of the Biological Survey of the United States Department of Agriculture, has issued a warning to all field men of the department to be on guard against it. The department is making public this warning for the benefit of sportsmen, lumbermen, cattle and sheep tenders, farmers, and others of the general public who may come in contact with the disease. Mr. Redington's warning has been endorsed by the United States Public Health Service.

"Tularemia," Mr. Redington explains, "is a plague-like disease of rodents transmissible to man. Of 500 human cases reported in the United States, twenty have terminated in death."

Cases of tularemia have been discovered in all states except Washington, Wisconsin, New York, Delaware, and the New England States. It has been established definitely that the disease is caused by an organism, *Bacterium tularensis*. In nature the disease affects jack rabbits, snowshoe rabbits, and cottontail rabbits. This provides a reservoir for infection of both wild animals and human beings. No cases have yet been recognized in commercial rabbitries, and care should be exercised to avoid the introduction of tularemia into such places. There is no danger of contracting the disease from eating rabbit meat if it is thoroughly cooked, even though the animal may have been infected.

In the Western States the disease is car-

ried from animal to animal and from animal to man by the bites of infected deer flies and ticks. Ticks also act as carriers in the Southern States. Men also become infected by handling rabbit carcasses, as in dressing them for the table or cutting them up to use as food for animals or bait in fishing or trapping. In the East, such direct contact is the common means of infection.

For protection against tularemia, the best known precaution is the use of rubber gloves when handling or dressing rabbits, or when skinning other animals that may be infected with the disease. In the open it is wise to exercise care in avoiding the bites of deer flies, ticks, or other possible carriers. Wearing rubber gloves is not an absolute protection, for skilled laboratory workers who are scrupulously careful because they are aware of the dangers, often contract infection. Rubber gloves should be worn in handling fresh skins. Dried skins are not likely to carry infection. One attack of tularemia confers immunity to man, hence those who have recovered from the disease should be employed wherever possible in occupations where there is risk of infection. No protective vaccine has been developed as yet.

In addition to the wild rabbits most affected by tularemia, and man who may contract the disease, scientists have discovered cases of tularemia in California ground squirrels, Columbia ground squirrels, Utah ground squirrels, desert ground squirrels, pine squirrels, yellow-bellied chipmunks, pocket gophers, woodchucks, opossums, cats, porcupines, house mice, deer mice, meadow mice, wood rats, and coyotes, and susceptibility is being investigated in other animals. All possible carriers of the disease should be handled with care.

Mr. Redington also warns of the danger of liberating wild rabbits trapped in one locality for the restocking of hunting areas. When restocking seems desirable, a quarantine should be maintained and no rabbits should be liberated for about ten days, to give the disease time to develop in the imported rabbits, which it will do usually in five or six days if they are infected. Otherwise the diseased rabbits are likely to cause a rabbit epizootic, reduce the game available for hunting, and create a center of infection from which human beings may contract the disease.

In man tularemia is likely to manifest itself

first by pain, tenderness, and a swelling of the lymph glands draining the region where the infection occurs, as those of the elbow or armpit when infection has occurred on the finger. These symptoms are likely to develop within two to five days after infection. An inflamed and painful ulcer may soon appear where the insect bite occurred, although in some cases this does not happen. The development of the disease is likely to be accompanied by sudden onsets of headache, aching pains, chills, prostration, general weakness, and fever.

Manufacturers advise Government on the Degree of Accuracy Commercially Attainable in Medicinal Tablets.

The contact committees of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers' Association have submitted to the Food, Drug and Insecticide Administration, United States Department of Agriculture, an extensive report in which they have indicated the degree of accuracy within which properly manufactured medicinal tablets can be made under present-day manufacturing methods. The report includes also methods of analysis for the tablets.

This is the third report submitted by the committees to the department. The previous reports related to hypodermic tablets. The present one, in addition to amendments to the previous reports, includes suggested tolerances for ten of the more common compressed tablets.

The Food, Drug and Insecticide Administration, which is charged with the administration of the Federal food and drugs act, has stated that in its activities in connection with the enforcement of the law, it will give careful consideration to the recommendations of associations of manufacturers of products subject to the act. In promulgating the report of the contact committee, the department invites comment from manufacturers, distributors, prescribers, and any others interested in the preparations involved.

The tolerances recommended by the contact committees are as follows:

HYPODERMIC TABLETS.

Atropine sulphate, 7½% to 12%, depending upon the grainage.

Cocaine hydrochloride, 9%.

Hyoscine hydrobromide, $7\frac{1}{2}\%$ to 12% , depending upon the grainage.

Morphine sulphate, $7\frac{1}{2}\%$.

Nitroglycerin, 15% .

COMPRESSED TABLETS.

Acetanilid, $7\frac{1}{2}\%$.

Acetphenetidin and salol, 10% .

Calomel, $7\frac{1}{2}\%$.

Calomel and soda, $7\frac{1}{2}\%$ to 10% , depending upon the grainage.

Cinchophen, $7\frac{1}{2}\%$.

Codeine sulphate, 9% .

Phenolphthalein, $7\frac{1}{2}\%$.

Salol, 9% .

Sodium bromide, $7\frac{1}{2}\%$.

Strychnine sulphate, $7\frac{1}{2}\%$ to 12% , depending upon the grainage.

Complete copies of the report, including recommended assay processes for the various tablets, may be obtained from the Food, Drug and Insecticide Administration, United States Department of Agriculture, Washington, D. C.

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Lawrence Sterne.

Sterne (Lawrence) [1713-1768]. The life and opinions of Tristram Shandy, gentleman. *New York. The Jenson Society*, 1906. *For Biography, see* Thackeray (W. M.) *Humourists; also* Cross (Wilbur L.). The life and times of Lawrence Sterne. *New York*, 1909; *also* Fitzgerald (Percy) *Life of Sterne*, 1896.

One of the by-products of the acrimonious discussions engendered by the introduction of the obstetrical forceps into general use is the delightful satire of Sterne. The Life and Opinions of Tristram Shandy are told *ab Ovo*. In fact the story antedates his conception. An explanation is given of how Tristram's mother cheats herself out of the advantages of being confined in London by taking her husband up to the metropolis on a wild goose chase the previous year on account of a pseudocyesis. Disappointed in not being able to have the best care in London, Mrs. Shandy is determined to go to the other extreme and have a local midwife. Her husband, being of scientific bent, is just as determined that his offspring shall not run the risk of cerebral trauma incident to a natural de-

livery. Cesarean section is largely responsible for Caesar's greatness as well as a number of other celebrities that he mentions. He quotes at length various authorities such as *Lithopaedus Senonesis de Partu difficili* by Adrianus Smelvgot (Smellie).¹ His figures as to the amount of pressure exerted upon the child's head at delivery, i. e., 470 pounds, are still quoted in text books on obstetrics. A compromise is reached by which his wife is to have a midwife and he is to have a man-midwife in the house in case there is any difficulty. He calls Dr. Slop (Dr. John Burton) who has devised an instrument to expedite delivery. Dr. Slop arrives after a number of misfortunes. He tries his instrument and crushes Tristram's nose. This happens in Book III.

The satire came out serially. It met with instant success in London and Sterne promised himself to produce two books a year concerning the Shandy fortunes. Poor health, however, soon interfered with the program. The humor of the book is delightful and the characters of Tristram's father, a well-to-do English squire, with universal knowledge, the sexually frigid Mrs. Shandy, Tristram's Uncle Toby, whose only interest is the military campaigns in Flanders, and Corporal Trim are drawn with such skill that they are immortal.

Sterne came of an ecclesiastical family although his father was a soldier. His great-grandfather was the Archbishop of York. His uncle, Dr. Jaques Sterne, was precentor and canon of York, besides being the main stay to Whig principles in the North of England. It was he who persuaded our author to take orders as the easiest way to a competency. Wilbur L. Cross pictures him as an emotional, impulsive nature with no force of character. Thackeray describes him as "foul Satyr". Cross' characterization of him as being "a humorist pure and simple and nothing else" fits best with the description he gives us of himself in the character of poor Yorick. "Sterne rarely, perhaps nowhere except in the sketch of Dr. Slop, reached the border where humor passes into satire, for satire means a degree of seriousness unknown to him." His attack upon the worthy Dr. Burton is ex-

1. This little jest of Sterne's seems to have escaped most of his Editors who gravely state that not only did Sterne make a mistake in spelling, but that the *Lithopaedus* is not a book but a calcified fetus. William Smellie makes the same mistake and is ridiculed for it by John Burton in his "five shillings' book upon the subject of midwifery."

plained by the late Dr. Alban Doran. Burton was the hated political opponent of Dr. Jaques Sterne. This hatred was shown in a number of ways and culminated in the imprisonment of Burton on the charge of being in communication with the forces of the "Young Pretender" at the time of their invasion of the North.

M. P. R.

Proceedings of Societies

The Virginia State Board of Medical Examiners

At its session held in Richmond, December 6-9, 1927, granted certificates to practice medicine in Virginia, to the following:

Dr. John Quincy Adams, Hampton, Roads, Va.

Dr. Staige Davis Blackford, University, Va.

Dr. Carl A. Broaddus, Dahlgren, Va.

Dr. John I. Chorlog, Clifton Forge, Va.

Dr. Thomas Hal. Clark, Jr., Christiansburg, Va.

Dr. Francis R. Crabill, Burkeville, Va.

Dr. Elizabeth Holt Edmunds, Richmond, Va.

Dr. William Engler, Brooklyn, N. Y.

Dr. David Phillip Evans, Jersey City, N. J.

Dr. Howard N. Freeman, New Market, Va.

Dr. Norman Howard Goose, Jersey City, N. J.

Dr. James Linwood Harris, Danville, Va.

Dr. Thomas B. House, Murray, Ky.

Dr. Clarence Robert Jones, Norton, Va.

Dr. William L. Miller, Raywood, W. Va.

Dr. William G. Mitchell, Philadelphia, Pa.

Dr. Ellis Columbus Moore, University, Va.

Dr. Clarence Eugene Sumner, Newport News, Va.

Dr. Felix D. Swope, Washington, D. C.

Dr. Wade Hampton Venable, Catawba, Va.

The Post-Graduate Medical Society of Southern Virginia

Met at Stony Creek, Va., January the 10th, under the presidency of Dr. E. W. Young, of Petersburg. The attendance was good, several interesting papers were read, and the members were entertained at dinner by Dr. Joel Crawford, of Yale, Va. The election of officers for 1928 was held and resulted as follows: President, Dr. S. E. Gunn, Hopewell; vice-presidents, Drs. C. E. Martin, Emporia, and F. N. Mallory, Lawrenceville; secretary-

treasurer, Dr. W. C. Powell (re-elected), Petersburg. The membership of the two following committees remained the same: Board of Censors, Drs. W. D. Prince, Stony Creek; W. W. Bennett, Blackstone, and D. C. Mayes, Church Road; Public Health and Legislation, Drs. F. N. Mallory, Lawrenceville; W. W. Seward, Surry, and M. H. Tredway, Emporia. This Society is composed of the seven counties of Nottoway, Dinwiddie, Prince George, Greensville, Brunswick, Surry and Sussex.

The Mid-Tidewater Medical Society

Held its regular quarterly meeting at Tappahannock, January the 25th, the president, Dr. James W. Smith, of Hayes Store, presiding. Dr. Malcolhm H. Harris, of West Point, secretary, was at his desk. The attendance was good, considering the season, and four new members were elected to membership. It was decided to have the election of officers in October, the present officers holding over for the year 1928. There was a general discussion of upper respiratory infections, and Dr. J. D. Clements, of Ordinary, read Dr. J. H. Hiden's prize paper in the recent contest for essays, on "How the Family Doctor Can Best Increase His Usefulness and His Income," which was published in *Southern Medicine and Surgery*.

The next meeting of this Society will be held in Urbanna, Va., at Urbanna Beach Hotel, on the fourth Wednesday in April.

Roanoke Academy of Medicine.

Invitations were extended to the various civic organizations, the city council and the school board to attend the regular night meeting of the Academy, on January the 23rd, to stimulate interest in the matter of playgrounds for children in Roanoke. The speakers of the evening were Dr. W. A. Parker, representative of the National Playground Association, and Mrs. Mundy, of Lynchburg, Va.

Dr. J. T. McKinney is president and Dr. H. Heyward Wescott, secretary-treasurer of the Academy.

The Albemarle County Medical Society,

At its annual meeting, elected Dr. Frank B. Stafford, of Blue Ridge Sanatorium, president for the ensuing year; Dr. V. W. Archer, University, vice-president, and Dr. F. C. McCue, Charlottesville, was re-elected secretary-treasurer. Several new members were received at this meeting.

Danville Academy of Medicine.

In spite of the fact that the Pittsylvania County and Danville Medical Society is an exceedingly active organization, the Danville Academy of Medicine continues to meet and has arranged an interesting program for February the 14th, at which time papers will be read by Drs. C. L. Bailey and C. T. Carter of that city. Dr. I. C. Harrison is president and Dr. J. A. Hawkins secretary.

The University of Virginia Medical Society

Held its first meeting at the University of Virginia Hospital Monday, January 9, 1928, at 7:30 P. M., Dr. Bray presiding, with a large audience, including faculty, medical students and visiting physicians.

Dr. W. W. Waddell reported the case of a child with pneumonia who developed an area of hyper-resonance, which was shown by X-ray and operation to be empyema. Discussion by Dr. Lawrence T. Royster. Exhibit of X-ray by Dr. Vincent Archer.

Dr. Flippin reported a case of tularemia, one of several in a family. The literature was reviewed by Dr. J. Staige Blackford.

Dr. W. J. Rollins, Jr., described a case of amebic abscess of the liver, presenting difficulties in differentiation from a cyst or false cyst of the pancreas. In the absence of history of dysentery, diagnosis was not made until operation. *Ameba histolytica* was recovered from the abscess cavity. Discussion by Dr. S. H. Watts, with demonstration of X-ray films.

Dr. Harry T. Marshall presented organs and microphotograph projections from two autopsies on rheumatic fever, in one of which there was congenital absence of septum between the right and left atria. Discussion by Dr. J. Edwin Wood.

Dr. Vincent Archer showed X-ray films of a patient, clinically indefinite and neurotic. The film showed both a gastric and duodenal ulcer.

Following the presentation of cases and laboratory material, Dr. Bruce Morton read a paper, illustrated with lantern slides, of a detailed experimental research upon gastric ulcer. Paper to be published elsewhere. Discussion by Dr. S. H. Watts, and Dr. Homer Smith, who reviewed recent aspects of the physiology of the stomach.

The guest of the evening, Dr. W. B. Porter, of Richmond, read a paper on rheumatic fever,

reviewing the recent contributions to the subject and advancing the view that rheumatic fever is a continuous infection with many analogies to tuberculosis, and, like tuberculosis, demands prolonged therapeutic rest, preferably in sanatoria. Discussion.

The second meeting of the Society is scheduled for January 23rd, and the third for February 6th.

Physicians, especially members of the Medical Society of Virginia, are cordially invited to attend.

HARRY T. MARSHALL, M. D.,
Reporter.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

Greetings from General Officers of the American Medical Association.

The January issue of *The Journal of the Woman's Auxiliary to the American Medical Association* expresses so well the value placed on this excellent organization by officers of the American Medical Association, that we are taking the liberty of quoting greetings from some of the officials.

Dr. Jabez N. Jackson, President of the Association, says:

To the Members of
The Woman's Auxiliary
GREETINGS

Wishing—

Success for your husband
Joy and happiness for you
Glory and honor to our profession
Good will among all.

Dr. Wendell C. Phillips, of New York City, last year's president, sent his greetings in the following form:

It is a pleasure for me to extend greetings to the *Journal of the Woman's Auxiliary* and to endorse the efforts of the organization to further the cause of public health education. This is a phase of medical affairs which can

well be undertaken by the wives of the physicians of the United States. One department deserves special mention: I refer to the importance of periodic health examinations from infancy to old age. Primarily this effort is for the best interests of the people. Secondly, if this movement is properly promulgated and encouraged, it is bound to result in great improvement in the economic condition of the physician.

Drs. W. J. and C. H. Mayo, of Rochester, Minn., think that:

The home life of the physician's wife is necessarily one of sacrifice in order that the physician may answer the demands of his calling. It is a source of pride to every member of the medical profession that in the Woman's Auxiliary of the American Medical Association we have such splendid evidence of woman's loyalty to the cause of humanity.

Dr. Ray Lyman Wilbur, of Palo Alto, Calif., another ex-president of the Association, expresses his greetings in the following paragraph:

The practice of medicine calls upon the doctor's wife and family for constant service. The women who are linked up with the medical profession must inevitably play a large part in representing medicine before the public. The Woman's Auxiliary to the American Medical Association has brought together a large group of earnest and helpful women who are rendering, not only personal service to members of the profession, but public service as well. May I join with many others in sending to the members of the Woman's Auxiliary my congratulations and express to them my gratitude.

Dr. Olin West, secretary and general manager of the Association, always interested in everything for the advancement of the Association and the Auxiliary, says:

I have been greatly interested in reading plans for the Woman's Auxiliary. It seems to me that the program you have in mind is safe and designed to be extremely helpful. It is desirable . . . to promote the organization of the states as rapidly as is practicable. . . . With respect to the . . . preparation of health programs to be presented before Women's Clubs, I have been of the opinion the greatest possibilities for good are to be found in this procedure. . . . I have made special

effort to ascertain just what health propaganda is being promoted in clubs. The facts as I have discovered them are astounding.

Dr. F. C. Warnshuis, of Grand Rapids, Mich., speaker of the House of Delegates of the American Medical Association, has endorsed the Auxiliary with the following statement:

I, indeed, welcome the opportunity you so cordially extend, to tender greetings to the members of the Auxiliary as well as to the host of doctors' wives who as yet remain unaffiliated.

In every field of human endeavor, that which has been attained and which typifies the ultimate of present-day civilization may be directly traced to the influences exercised through organized effort. No individual, no isolated coterie, can achieve as ably or with as far-reaching results as can a nation-wide group of organized individuals. It is for that reason that I not only commend but heartily endorse the aims, scope and activities of the Woman's Auxiliary.

The Auxiliary's object and purposes conform to the existent opportunities heretofore unsolved, neglected and awaiting the guiding direction of your organization.

The Auxiliary creates an opportunity for every doctor's wife to subscribe supporting assistance to her husband, to his medical society and to all humanity, thereby enhancing their individual and collective interests to the common good. To serve, to be of service, what other opportunity affords so great a degree of personal satisfaction? That, to me, seems to be a primal reason for every doctor's wife to become an active member of the Auxiliary.

Every honor and praise is due to the original sponsors and organizers of the Auxiliary. They perceived, they felt the urge, they demonstrated their convictions and the Woman's Auxiliary has assumed its rightful place. It is serving, and all mankind will be better by reason thereof.

I bid you good speed with a fervent wish that 1928 will be a year of exceptional advancement and achievement.

Dr. Allen H. Bunce, Atlanta, Ga., vice-speaker of the House, says:

The founding of the Woman's Auxiliary to the American Medical Association marked a new epoch in the forward progress of organ-

ized medicine in America. Its growth, under the able leadership of its officers, has been truly phenomenal and could have occurred only because of the fact that it fills a very definite and necessary place in the scheme of things medical. We are very happy to note that the last remaining remnants of doubt as to the advisability of such an organization are rapidly disappearing from the minds of even the most conservative members of the American Medical Association. This is due in no small measure to your remarkable ability to clear away and dispel doubts by the logic of service to the Local, State and National Association, and more particularly to the individual communities, by teaching and practicing the gospel of organized medicine for the good of the commonwealth. At the recent meeting of the secretaries and editors in Chicago they voted unanimously to aid you through the individual state journals by devoting a special section in each to the Auxiliary and its work. Thus it will become more and more of a potent factor for progress in all the states. Soon no state in the Union can afford not to have an Auxiliary. I congratulate you on the progress already made and predict a glorious, successful and useful future for the Auxiliary.

Last, but not least, we have the endorsement of the president of our own State Medical Society, Dr. J. W. Preston, of Roanoke, Va., as follows:

I am wondering if our societies fully realize and appreciate the field of usefulness and the accomplishments of the Woman's Auxiliary. The past decade has witnessed the expansion of medicine far beyond the giving of drugs and of surgery. Its broader opportunities and obligations in social, economic, and educational matters in which good health is a dominant factor are apparent as never before. Into these your work is fitting so splendidly.

On behalf of the Medical Society of Virginia, I take this opportunity as the New Year dawns, to congratulate you and to wish you even greater success.

With the foregoing expressions of confidence in the Auxiliary, we must not fail, so let us rally to the call and make this the best year we have ever had.

Mrs. Southgate Leigh,

Norfolk, Va., president of the Woman's Auxiliary to the Medical Society of Virginia, recently returned from Chicago, where she attended a meeting of the executive board of the Woman's Auxiliary to the American Medical Association.

Mrs. Leigh is chairman of the program committee. She announces the program planned for the national auxiliary meeting, which will be held June 11-16, in Minneapolis, Minn.

The principal speaker, it is expected, will be Dr. Vincent, of the Rockefeller Institute, New York. Others will be Dr. Jabez Jackson, of Kansas City, and Dr. W. S. Thayer, of Baltimore, the two American Medical presidents. The newly appointed advisory council for the auxiliary, comprising Dr. Edward Heckel, of Pittsburgh; Dr. J. H. Walsh, Chicago; Dr. A. R. Mitchell, Lincoln, Neb.; Dr. J. H. J. Upham, Columbus, Ohio; Dr. Olin West, Chicago, and Dr. Morris Fishbein, Chicago, will be introduced for the first time, and will speak.

The Woman's Auxiliary to the Richmond Academy of Medicine

Has elected the following officers for the present year: President, Mrs. Stuart Michaux; vice-presidents, Mrs. E. G. Hill and Mrs. Joseph Bear; secretary, Mrs. N. T. Ennett, and treasurer, Mrs. J. W. Hannabass. Mrs. W. A. Gills is chairman for "*Hygeia*" and Mrs. J. K. Hall chairman of the Legislative Committee.

At the luncheon of the Welfare Committee of the Woman's Club, Richmond, in January, the Auxiliary secured Dr. R. K. Flannagan, of the State Board of Health and Dr. W. B. Foster, of the City Bureau of Health, as the speakers. Both of these doctors spoke on public health subjects.

The Auxiliary held its annual tea on February the 1st. This was a most enjoyable entertainment and largely attended. Quite a large delegation from the Auxiliary to the Post-Graduate Medical Society of Southern Virginia was present. This intermingling of the members of two auxiliaries was especially gratifying and added greatly to the interest of the occasion.

The Woman's Auxiliary to the Post-Graduate Medical Society of Southern Virginia

Held its regular quarterly luncheon meeting in Petersburg, on February the 1st, under

the able leadership of Mrs. E. J. Nixon, of that city. Twenty-eight members were in attendance. Guests of the Auxiliary on this occasion were Drs. Wm. F. Drewry and E. L. McGill, of Petersburg, and Miss Agnes Edwards, secretary of the Medical Society of Virginia. Following the meeting, twenty-two of the ladies motored to Richmond to attend the tea given by the Woman's Auxiliary to the Richmond Academy of Medicine.

Officers of the Auxiliary are: President, Mrs. E. J. Nixon, Petersburg; vice-presidents, Mrs. T. F. Jarratt, Jarratt, and Mrs. J. N. Elder, Hopewell; recording secretary, Mrs. George H. Reese, Petersburg; corresponding secretary, Mrs. Bolling J. Atkinson, Emporia; treasurer, Mrs. R. T. Hawks, Carson.

At the last meeting of the State Society, Mrs. F. J. Wright, Petersburg, was elected State Organizer, and Mrs. W. C. Powell, also of Petersburg, assistant State Organizer. County chairmen to work with them are Mrs. D. L. Elder, Hopewell; Mrs. D. C. Mayes, Church Road; Mrs. C. C. Tucker, Blackstone; Mrs. W. E. Price, Meredithville; Mrs. E. M. Parker, Emporia; Mrs. W. D. Prince, Stony Creek, and Mrs. W. M. Seward, Surry.

Chairmen of Standing Committees are: Hygeia, Mrs. Meade Edmunds, Petersburg; Legislative, Mrs. J. Bolling Jones, Petersburg; Education and Publicity, Mrs. Wright Clarkson, Petersburg; Organization, Mrs. J. A. B. Lowry, Crewe.

The Truth About Medicine

In addition to the articles enumerated in our letter of November 26th, the following have been accepted:

Winthrop Chemical Co., Inc.,
Phanodorn.

Change of Agency:

Gynergen, formerly distributed by H. A. Metz Laboratories, Inc., New York, is now distributed by Sandoz Chemical Works, Inc., New York. The Council has continued the acceptance of Gynergen under the new distributor.

NEW AND NON-OFFICIAL REMEDIES

Anaerobic Antitoxin.—An antitoxic serum prepared by immunizing animals against the anaerobic bacteria found in gangrenous wounds. Evidence has been published to indicate that the use of anaerobic toxin preparations may be of value in the treatment of gas gangrene.

Anaerobic Antitoxin (Polyvalent)—Lederle.—An antitoxic serum prepared by immunizing horses with gradually increasing doses of *B. tetani* and of *B. welchii* and *Vibrio septique*, both obtained from anaerobic broth cultures of the organisms. Potency tests for the content of tetanus antitoxin and *B. welchii* (perfringens), antitoxin are made according to the methods prescribed by the U. S. Hygienic Laboratory; for determining the strength of the *Vibrio septique* antitoxin, serial dilutions of the antitoxin are mixed with *Vibrio septique* toxin and the mixtures injected into rabbits. The product is marketed in 100 c.c. vials, each cubic centimeter containing 50 units of tetanus antitoxin, 2 units of perfringens (*B. welchii*) antitoxin, and sufficient *Vibrio septique* antitoxin to neutralize one thousand M. L. D. of the *Vibrio septique* toxin. Lederle Antitoxin Laboratories, New York.

Ampuls Dextrose (d-Glucose), 10 Gm., 20 c.c.—Each ampule contains Dextrose, U. S. P., 10 Gm.; cresol, 0.1 per cent; distilled water to make 20 c.c.; buffered with dibasic sodium phosphate anhydrous and potassium biphosphate anhydrous. H. K. Mulford Co., Philadelphia.

Ampuls Dextrose (d-Glucose), 25 Gm., 50 c.c.—Each ampule contains Dextrose, U. S. P., 25 Gm.; cresol, 0.1 per cent; distilled water to make 50 c.c.; buffered with dibasic sodium phosphate anhydrous and potassium biphosphate anhydrous. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., December 10, 1927, p. 2041).

Insulin—Squibb, 100 units, 10 c.c.—Each c.c. contains 100 units of insulin—Squibb (New and Non-official Remedies, 1927, p. 197). E. R. Squibb & Sons, New York.

Staphylococcus Mixed Bacterin.—A staphylococcus vaccine (New and Non-official Remedies, 1927, p. 363), each c.c. containing 4,000 million killed *Staphylococcus albus* and *Staphylococcus aureus* in equal proportions. It is marketed in 5 c.c. vial packages; in single 20 c.c. vial packages, and in packages of six 1 c.c. ampules. Abbott Laboratories, North Chicago, Ill.

Erythrol Tetrannate Tablets—Merck, $\frac{1}{4}$ grain.—Each tablet contains $\frac{1}{4}$ grain of erythrol tetrannate (New and Non-official Remedies, 1927, p. 267). Merck & Co., Inc., Rahway, N. J. (Jour. A. M. A., December 24, 1927, p. 2193).

Typhoid Prophylactic.—This typhoid vaccine (New and Non-official Remedies, 1927, p. 366), is also marketed in 5 c.c. vials containing one billion killed typhoid bacilli per c.c.; in 20 c.c. vials containing one billion killed typhoid bacilli per c.c. Abbott Laboratories, North Chicago, Ill. (Jour. A. M. A., December 31, 1927, p. 2263).

PROPAGANDA FOR REFORM.

The Mount Clemens Baths.—The Mount Clemens mineral springs are unusually strong solutions of salines, giving off the pungent odor of hydrogen sulphide. They are not thermal springs; the water is heated in bath houses. Patients with chronic rheumatic, neuritic and neuralgic disturbances are especially likely to be benefited by such baths. The use of hot procedures is dangerous in all conditions of profound general weakness, enfeeblement of the heart and degeneration of the arteries. Patients with a tendency to rise in temperature should also not be subjected to heat procedures. Medical supervision is absolutely required to secure good results. What folly it is for people to go to Mount Clemens

and other bathing resorts, jump into hot mineral baths and drink a lot of strong saline water, trusting to Providence to take care of the rest! (Jour. A. M. A., November 5, 1927, p. 1625).

Scarlet Fever Antitoxin.—The advantages of giving commercial scarlet fever antitoxin are necessarily dependent on the accuracy of standardization of the preparation and its use in adequate dosage. The chief advantage of giving commercial scarlet fever antitoxin as a preventive is that the administration of 100,000 neutralizing units prevents the development of clinical scarlet fever in a susceptible person already infected with scarlet fever streptococci but not yet sick. This protection is transient and, as soon as the antitoxin is eliminated from the body, the individual may again become susceptible to scarlet fever and should be more permanently protected by active immunization with graduated doses of the toxin. The advantages of giving scarlet fever antitoxin are: 1. If an adequate dose is given, the toxin in the patient's body is neutralized and death from toxemia is prevented. 2. If the antitoxin is given early, both the incidence and the severity of complications are reduced. 3. As a rule, patients who receive scarlet fever antitoxin early in the disease get rid of the scarlet fever streptococci sooner than those who do not receive the antitoxin. (Jour. A. M. A., November 5, 1927, p. 1625).

Klaiber Subaqueous Intestinal Bath Apparatus Not Acceptable.—The Council on Physical Therapy reports that this apparatus is not acceptable for inclusion in the accepted list of devices for physical therapy. It is stated to be a device for irrigating the colon while the patient is immersed in water with the aim thereby of increasing abdominal pressure to compensate in part for the increased pressure within the colon. The Council reports that the apparatus is apparently made for specific purposes and the principle of operation is novel and suggests therapeutic advantages. The Council declares the apparatus unacceptable because (1) sufficient evidence has not been presented to show that this complicated apparatus will accomplish more than simple existing devices of the same general nature; (2) because therapeutic claims not well warranted and unscientific statements are made in the advertising; and (3) because adequate instruction in the proper use of the apparatus and method and adequate exposition of the possible dangers and limitations are not given. (Jour. A. M. A., November 12, 1927, p. 1693).

Solution of Pituitary for Induction of Labor.—The application of solution of pituitary to the nasal mucous membrane as a means of induction of labor has been reported on. Under direct vision with reflected light and the use of a speculum, the nose is cleansed and a pledget of cotton, moistened with 1.25 c.c. of solution of pituitary, is inserted snugly under the anterior end of the inferior turbinate of the nostril. At the end of an hour or two the pledget is withdrawn. If necessary, a fresh pledget is applied to the other nostril. The procedure is reported to have been successful in every one of fifty-six cases in which it was used. In a series of twenty-four cases to test the method in normal pregnant women during the last month of pregnancy and at term, there were nine failures. All the babies were born alive. (Jour. A. M. A., November 12, 1927, p. 1696).

Warnink's Advocaat Not Acceptable for N. N. R.—"Warnink's Advocaat" (Julius Wile, Sons & Co., New York, distributors), is an egg nog declared to be imported from Holland and to contain 18 per cent

of alcohol in the form of brandy and three minims of Fowler's solution to each fluid ounce. The Council declared the preparation unacceptable for New and Non-official Remedies, because the name is not descriptive of the potent constituents—potassium arsenite and alcohol—of the mixture and because the administration of an alcoholic "tonic" in combination with fixed amounts of arsenic and under a non-informing name is irrational, while the method of marketing is likely to lead to its ill advised and harmful use by the public. (Jour. A. M. A., November 12, 1927, p. 1711).

Philip Newton's Matamel.—"Matamel" has for two or three years past been exploited by one Philip Newton. It is claimed to be—and probably is—the concentrated sap of the maguey plant. According to the advertising put out by Newton, both under his own name and under his trade name "Newton Laboratories, Inc.," Matamel has been puffed as a cure for Bright's disease, "bladder trouble" and hypertrophy of the prostate. In September, 1926, the Newton Laboratories, Inc., as well as Philip Newton himself, were called on by the postal authorities to show cause why a fraud order should not be issued against them. To the disgrace of the medical profession, Newton was able to produce a dozen or more testimonials from physicians in defense of his quackery. Obviously realizing that sooner or later the mails would be closed to him, Newton has determined to discontinue the mail-order business. This does not mean that the public is no longer to be humbugged by the Matamel quackery. It means that Newton has to split his profits with the drug stores and will sell it through them. (Jour. A. M. A., November 12, 1927, p. 1712).

Book Announcements

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery and the Various Specialties, by leading members of the Medical Profession throughout the world. Edited by HENRY W. CATTELL, M. D., Philadelphia, with COLLABORATORS. Volume IV. Thirty-seventh Series, 1927. Philadelphia and London. J. B. Lippincott Company. 1927. 8 vo. 309 pages. Cloth.

Physical Diagnosis. By CHARLES PHILLIPS EMERSON, M. D., Professor of Medicine, Indiana University School of Medicine; Author of "Clinical Diagnosis." Philadelphia and London. J. B. Lippincott Company. Octavo of 553 pages with 324 illustrations. Cloth. Price, \$7.00.

Baby's Health Day by Day. A book of charts to be filled out with daily records, and handy information for the mother or nurse. Published by the Professional Press, Inc., 17 North Wabash Avenue, Chicago, Ill. Pocket size.

Modern Baking Powder an Effective, Healthful Leavening Agent. Including the occurrence of aluminum compounds in foods and their effect on health. Compiled by JUANITA E. DARRAH. Distributed by the Research Department of Calumet Baking Powder Company, Chicago, Illinois. 1927. The Commonwealth Press, Inc., Chicago, Ill. 12mo of 125 pages. Cloth. Price, \$1.00 net.

Virginia Medical Monthly

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Editorial

Ephedrine.

Clinicians are divided on this drug. Some have been disappointed in it; others have been encouraged by successes. Any study of its action, controlled by careful methods of study, is welcome, because a judgment of the powers of the drug can only be attained by the sum of experiences recorded by a large number of observers.

Those interested may read with profit, an article by Althausen and Schumacher (*Arch. Int. Med.*, Vol. 40, No. 6, page 857), and we append comments by these authors, found at the close of their study:

1. Ephedrine may be of benefit in some cases of chronic hypotension.
2. The results of ephedrine therapy in acute hypotension of shock are doubtful.
3. In asthma and hayfever ephedrine is of great value, completely controlling attacks in about half of the cases and giving partial relief in another one-fourth of the cases.
4. The advantage of ephedrine over epinephrine is that it is effective when given by the mouth; that its action is longer; that it does not produce local irritation as a nasal spray.
5. The use of ephedrine in urticaria is not promising.

Changes in the Eyegrounds.

Practitioners may well be interested in observations made upon changes in the eyegrounds. Particularly may one's interest be

engaged in noting the findings of a clinician examining one hundred and eighty-seven cases of vascular disease and related conditions. Text-book treatments of eyeground findings are easily found by reference to standard treatises, but the observations of a group of cases, such as reported by Altnow, in the *Archives of Internal Medicine*, Vol. 40, No. 6, page 757, afford one a better opportunity for practical consideration of this means of investigation. The patients studied were admitted to Peter Bent Brigham Hospital from February, 1924, to July, 1925. The diagnosis on patients resulted in the following group of diseases: Exophthalmic goiter, toxic adenoma of the thyroid, diabetes, acute and subacute nephritis, chronic nephritis, vascular hypertension, chronic myocarditis with and without arrhythmia, cardiac infarction, angina pectoris, and chronic cardiac valvular disease. The eyegrounds in these patients were studied with the dilated pupil and, at the same time, the blood pressure readings were taken. We shall only note here the summary of this interesting clinical study.

In twenty patients with thyroid disease, there was a striking absence of retinal arteriosclerosis, excepting in patients of the sixth decade.

In forty-seven patients with diabetes, of all ages over twelve years, there was definite retinal arteriosclerosis in 36.1 per cent of the cases without hypertension and in 81.8 per cent of these cases with hypertension. The average age of diabetes patients with retinal arteriosclerosis was 57.7 years. Altnow observes that if one sees eyegrounds exhibiting abnormally red retinas, numerous small round hemorrhages, groups of small yellowish-white and grayish-white spots on the central field of the retina, arteries with sclerotic changes, a well defined sclerosis of the choroidal vessel in the periphery of the retinal field with normal or nearly normal disc, in a person past middle life, diabetes should strongly be suspected.

In a small number of patients with acute and subacute nephritis there was an absence of retinitis; in patients with chronic nephritis, retinitis was found more frequently than in those with vascular hypertension. In renal retinitis there was observed marked papilledema, retinal edema, cottonwood spots, and coarse fan and star formations. In fifty-six patients with and without hypertension, in

whom chronic myocarditis was either primary or secondary, 91.2 per cent with hypertension showed retinal arteriosclerosis, while 68.2 per cent showed it in absence of hypertension.

In chronic valvular disease, following rheumatic origin, retinal arteriosclerosis was absent in two-thirds of the cases. If retinal arteriosclerosis was present in this class of cases, it occurred in association with an elevation of blood pressure.

Absorption.

Absorption of food in the gastro-intestinal tract is fundamental. Passage of food products, introduced into the digestive tube, to the circulating blood and lymph, involves complicated physiologic changes. Gross foodstuffs undergo phenomenal changes in the processes of digestion and absorption. If one may imagine the extreme modification of the average meal as it is served on the table to the state such food units assume in the portal blood and the lymph, one is struck by the transformations brought about by the processes of digestion and absorption. Food furnishes an interesting and important subject for comment, because of the needs of its absorption by the blood and lymph.

Absorption of foodstuff in the stomach is limited and abridged. Although the stomach receives in a short time a load of food during the course of a meal, absorption of food from this organ is negligible under normal conditions.

The motor function of the stomach upon crude food prepares the meal for intestinal action. The action of the secretions of gastric glands upon the food during its stop-over in the stomach, further prepares it for intestinal digestion. Physiologists of today agree that absorption in the stomach is very limited. Alcohol is absorbed, but water is practically not at all absorbed in the stomach. Von Mering's experiments show that as soon as water is introduced into the stomach, it proceeds promptly to pass into the duodenum. In the case of a large dog with a fistula in the duodenum, 500 c.c. of water were given by the mouth and in twenty-five minutes 450 c.c. passed into the fistulous opening. Howell observes that absorption does not take place rapidly in the stomach. The same is true of sugars and peptones. Under normal conditions little, if any, absorption of these food elements occurs in the stomach. Fats are not

saponified or emulsified until intestinal secretions are met. The stomach plays an important part in preparation of food, but does not absorb it normally to any extent.

In the small intestines absorption of food is best accomplished. In the great reaches of the small intestine, from duodenum to ileocecal valve, the physiologic changes in gross forms of food occur and along its courses, absorption of digested food is accomplished. The remainder of it passes into the ascending colon, and here, with water rapidly absorbed, becomes more dense and assumes the physical form of fecal matter as it approaches the rectum.

An article by Hosoi, Alvarez and Mann, (*Arch. Int. Med.*, Vol. 41, No. 1, page 112), on intestinal absorption, with a view to a search for a low residue diet, may be of interest in this connection. In summary, this work seems to show that the best basis for a low residue diet is lean meat, to which may be added rice, hard boiled eggs, sugars (except lactose), and probably fruit juice, tea and coffee. The highest degree of absorption was obtained by giving small amounts of food.

News Notes

An Early Diagnosis Campaign to be Held by the Virginia Tuberculosis Association and its Local Branches.

For many years it has been known that to procrastinate with tuberculosis is to gamble with death, and that the hope of conquering this disease lies in the ability to act promptly. It is also well recognized that efficiency in discovering the disease is a large factor in preventing the spread of infection. In spite of the publicity given these facts, doctors still report that most cases of tuberculosis which come to them for their first examination are found to be in an advanced stage of the disease, and a recent census of patients at the sanatoria shows that only 16 per cent are diagnosed as early cases on entrance.

During March and April National and State tuberculosis associations will conduct an intensive publicity campaign to emphasize the importance of the early diagnosis of tuberculosis. The aims of the campaign will be first, to focus the attention of the public at large upon the danger signals of early tuberculosis

and to urge them to go to their doctors for examination; and second, to stimulate renewed interest on the part of the medical profession in the recognition of early signs of the disease.

The American Public Health Association, at its annual meeting held in Cincinnati, October, 1927, endorsed by resolution the plan of the campaign. The American Medical Association has agreed to stimulate the interest of the medical profession through its Journal and to interest the lay people by publishing articles and editorials in *Hygeia*.

State and local associations in Virginia will arrange for talks, the distribution of literature and posters, and two moving pictures will be shown. The moving picture for lay audiences entitled "Let Your Doctor Decide" will be shown throughout the state at public meetings and a medical one, pronounced "admirable" by Dr. Haven Emerson, called "The Doctor Decides" will be shown before medical societies and at the medical colleges of the State.

L. C. F.

Sectional Meeting of American College of Surgeons.

The Virginia, West Virginia, Maryland and District of Columbia sectional meeting of the American College of Surgeons was held in Roanoke, Va., January the 18th and 19th, and an excellent program was enjoyed by those present. The attendance was good and there were a number of interesting papers and clinics.

Luncheon was served the visitors at the various hospitals of the city on both days, and on the evening of the 18th, the Roanoke Academy of Medicine tendered the fellows of the College and all visiting doctors an informal dinner at the Patrick Henry Hotel.

Officers of the Virginia section elected for the ensuing year are: Chairman, Dr. Clarence Porter Jones, Newport News; Secretary, Dr. Carrington Williams, Richmond; and Councillor, Dr. E. C. S. Taliaferro, Norfolk.

Corner-Stone Laid for Cabaniss Hall.

The corner-stone for Cabaniss Hall of the Medical College of Virginia, Richmond, was laid January the 20th, with appropriate ceremonies. This building is a women's dormitory, chiefly for the school of nursing, at the Medical College of Virginia, and has been named for Sadie Heath Cabaniss, who from 1894-1901 was superintendent of the Old Do-

minion Hospital, one of the institutions of the college. (A sketch of Miss Cabaniss appears in the *Miscellaneous Department* of this issue).

Cabaniss Hall, which will accommodate 134 persons, one-half in single and one-half in double rooms, has four dormitory floors, on each of which there is a sun porch; there are both tub and shower baths, hot and cold water and built-in clothes closets in each room, and on each floor in the east wing of the building living quarters for the graduate staff of the college hospitals have been provided.

On the main floor there is a large living room and library panelled in oak with a fireplace, four reception rooms, a large recreational hall, administrative offices, a teaching unit, and living quarters for the dean of the school of nursing and the social director of the building.

On the ground floor there is a large dining-room, a smaller staff dining-room, pantry, dishwashing and cafeteria units, linen and sewing-rooms, a home economics laboratory, and a small laundry and a sewing-room for student use. By tunnel this floor communicates with the Dooley and St. Philip Hospitals and will communicate with the new outpatient clinic by another tunnel when that is erected.

Dr. J. H. Hiden Wins First Prize.

Three prizes were recently offered through *Southern Medicine and Surgery* of Charlotte, N. C., for the three best papers submitted on the subject, "How the Family Doctor Can Increase His Usefulness and His Income." The contest was open to any reputable, regular doctor in either of the Carolinas or Virginia. It is stated that forty-two essays were submitted and that they came from both cities and "the cross-roads." All essays contained valuable suggestions, but Dr. J. H. Hiden, Pungoteague, Va., was voted the winner of the first prize of \$250. It was voted by the committee that Dr. W. M. Johnson, Winston-Salem, N. C., and Dr. H. J. Langston, Danville, Va., tied for the second place, so the second and third prizes were added together and divided equally between these two doctors. All of these essays appear in the January issue of *Southern Medicine and Surgery*.

Members of Hospital Committee.

The president of the Chamber of Commerce, of Petersburg, Va., appointed the following

committee to have charge of work incident to enlargement of the Petersburg Hospital: Dr. Wright Clarkson, chairman, and Drs. W. P. Hoy, Herbert C. Jones, W. B. McIlwaine, W. C. Powell, George Reese, Mason Romaine, H. M. Snead, and several laymen.

Abbott Laboratories Takes Over John T. Milliken and Company.

The Abbott Laboratories, North Chicago, Ill., announces the purchase of the business, good will, equipment and products of John T. Milliken and Company, of St. Louis, manufacturers since 1894 of reliable pharmaceutical products. Orders for Milliken preparations will continue to be filled from St. Louis, or orders may be sent direct to the Abbott Laboratories, in North Chicago.

Dr. James M. Miller Injured.

Dr. James M. Miller, of Wytheville, Va., was quite badly hurt on January the 29th, when his automobile was struck by a train a little west of that city. He was taken to the Johnston Memorial Clinic in Abingdon, Va., for treatment. It is reported that Dr. Miller sustained a fracture of the skull and a fracture of the right scapula and multiple severe lacerations of the scalp and face. As we go to press, we are advised that he is doing remarkably well in view of the nature of the wounds.

New Hospital to Replace Present Hygeia Hospital.

Hygeia Hospital, Richmond, Va., of which Dr. John R. Blair has been chief surgeon, was closed early this month, the idea being to build a new hospital to replace the present structure. It is stated that a corporation has been formed which plans to erect an eleven-story hospital on the present site and that the new hospital will cost upwards of \$300,000.

Dr. E. W. Buckingham,

Of the class of '18, Medical College of Virginia, who returned from China last summer after a residence there of six years, has located at Messick, York County, Va., for the practice of his profession.

Dr. Charles B. Baughman,

Recently of Marion, Va., has moved to Elizabethton, Tenn., where he will limit his practice to diseases of the eye, ear, nose and throat.

Dr. John Lee Grant,

For some time of Midland, Va., after a visit to California and Manila, has returned to Vir-

ginia and has located at Gainesboro, where he is engaged in the practice of his profession.

Col. Junius F. Lynch, M. C.,

Norfolk, Va., president of the Virginia Section of the Reserve Officers' Association, was the guest of honor at the dinner meeting of the Richmond Chapter, Reserve Officers' Association, on January the 25th.

Fewer Boy Automobile Thieves in Los Angeles.

The records of the Los Angeles County jail indicate that between 1919 and 1926 the average age of its inmates decreased from about 31 years to 29 years 10 months, and that nearly a fifth of the inmates were between the ages of 16 and 20. The most frequent offence was the setting of automobiles, and fully half of these thefts were by boys under 21. An educational campaign among young persons and their parents has already resulted in a notable decline in this type of offence.

Sixty Years a Mason.

Thompson Lodge, No. 145, A. F. & A. M., at Round Hill, Va., has the rare distinction of having a worshipful master who has been a Mason for sixty years—Dr. J. E. Copeland, of that place. During this time he has been active in the work of the several lodges with which he has been affiliated. Dr. Copeland reports that of the forty-six members of Hamilton Lodge when he was made a Mason, but two survive, one of these being Dr. Charles F. Russell, of Herndon.

Dr. Gladys Smithwick,

Who has recently been connected with the staff of the Western State Hospital, at Staunton, Va., has gone to Chicago, Ill., where she has accepted an appointment as anesthetist-in-chief at the American Hospital. Dr. Smithwick is an alumna of the Medical College of Virginia, being a member of the class of '25.

Dr. Ernest H. Alderman,

Recently of Williamsburg, Va., has moved to Richmond, where he has become a member of the staff at Westbrook Sanatorium.

Dr. T. Ruffin Pratt,

Who was a member of the medical staff at Blue Ridge Sanatorium, Charlottesville, Va., from 1924 until last April, is now superintendent of the Eastern Shore Tuberculosis Sanatorium, at Salisbury, Md.—a branch of the Maryland Tuberculosis Sanatorium.

Research Work Commended.

It is pleasing to note that research work

done by one of our members, Dr. H. J. Warthen, Jr., while at St. Elizabeth Hospital, Richmond, has been commented upon favorably in an editorial entitled "Foreign Bodies in the Circulation," in the January 14th issue of the *Journal of the American Medical Association*.

Dr. T. M. Trousdale,

Who has been associated with Dr. W. R. Williams, at Richlands, Va., for the past seventeen months, is now assistant resident physician on the eye, ear, nose and throat service at the Long Island College Hospital, Brooklyn, New York.

Dr. W. F. Mitchell.

Of the class of '26, Medical College of Virginia, recently completed an internship at Lewis-Gale Hospital, Roanoke, Va., and has located at New Castle, Va., for the practice of his profession.

"Mothers' Aid" Granted by Institutions.

Four institutions conducted under church auspices in North and South Carolina, finding that some children for whom institutional care was requested could be cared for in their own homes if the mothers had the necessary means to support them, are now giving "mothers' aid" in such cases. South Carolina is one of the six States which at present has no law granting aid to children in their own homes.

The Association of Norfolk and Western Railway Surgeons,

At its annual meeting in the Fall, elected the following officers for the coming year: President, Dr. D. A. Berndt, Portsmouth, Ohio; Vice-Presidents, Dr. W. R. Rogers, Bristol, Va.-Tenn., and Dr. S. W. Hurdle, Winston-Salem, N. C.; member of the Executive Committee, Dr. A. G. Rutherford, Welch, W. Va. Dr. T. D. Armistead, Roanoke, Va., was re-elected secretary-treasurer of the Association.

Dr. W. C. Welburn,

Ballston, Va., has been elected first vice-president of the John Marshall Highway Association. The purpose of this Association will be to aid in the building of the Arlington county unit, known as the direct route from the new memorial bridge through Clarendon, Ballston and Falls Church.

Dr. J. M. Habel,

Of Jetersville, Va., is credited with saving the lives of four people in a fire recently.

When passing a home in his section, while the owner and his wife were at church, he saw that the house was on fire and rushed in and rescued an aged aunt and three small children of the family.

Students' Loan Fund Working Well in California.

According to the *Journal of the A. M. A.*, during the six years in which the students' loan fund has been in operation at the University of California, Los Angeles, there has been only one failure to return the money, although the student's note was the only security given. This fund was arranged as a means of enabling deserving students to finance their expenses so as to complete the University course.

Co-operation in Work for Boys and Girls in New York City

Twenty-five of the 88 social agencies caring for New York City's dependent children have organized as a section of the Welfare Council of New York, in order to co-ordinate their activities and eliminate needless duplication of work. All existing agencies will be invited to send delegates to the council.

The Welfare Council is now making a study of boys' work activities in Brooklyn, preliminary to a similar study for New York City as a whole. When completed it is intended that this study shall present an accurate picture of facilities for social work among New York's half-million boys.

"The Hebrew Physician,"

(HaRofeh HoIvree), the only medical journal published outside of Palestine which is written in Hebrew, has just made its initial appearance.

This journal is under the editorship of Dr. Moses Einhorn and Dr. A. Goldenstein. It contains articles on general medical subjects and has a special section devoted to new Hebrew medical terminology. All physicians who are interested in this journal are requested to communicate with the editors, addressing them care "The Hebrew Physician," 286 West 86th St., New York City.

The Tri-State Medical Association of the Carolinas and Virginia

Will hold its thirtieth annual session at Cavalier Hotel, Virginia Beach, Va., February the 14th and 15th, under the presidency of Dr. Robert Wilson, of Charleston, S. C. Dr. J. M. Northington, Charlotte, N. C., is

secretary. There will be a symposium on "The Reduction of Maternal Mortality." In addition to this, many interesting papers will be presented.

Dr. Susan A. Price,

For several years past located at Williamsburg, Va., announces that she is now at State Teachers College, Farmville, Va.

Opposes Too Great Speed in School Work.

Dr. Garry Cleveland Myers, of the Western Reserve University, in the last issue of *Mental Hygiene*, condemns what he calls "stop watch" methods in the promotion of educational efficiency in the schools, as detrimental to the mental health of the child. He states that this mania for speed also reacts on the teacher and makes her nervous. He gives a number of suggestions as specific remedies for the situation, emphasizing the fact "that the most effective learning presupposes a comfortable learner."

Two Virginia Doctors on Committees.

At the recent meeting in Indianapolis of the national executive committee of the American Legion, Dr. Edwin J. Nixon, Petersburg, was elected a member of the national child welfare committee of the Legion, and Dr. Israel Brown, Norfolk, Department Commander of Virginia, a member of the committee to welcome distinguished guests.

Fund for the Study of Infantile Paralysis.

An anonymous friend of the University of California has promised \$5,000 a year during his life and a fund of \$100,000 by his will to be devoted to the prevention and cure of infantile paralysis. The fund, however, may be diverted to combat any serious epidemic which threatens the lives of the children of the State.

Married.

Dr. William White Falkener and Miss Eva Cruikshank, both of Newport News, Va., December 31.

Dr. Andrew Stubbs Davis, class of '26, Medical College of Virginia, Oakland, Calif., and Miss Irene Louise Leonard, Chincoteague, Va., at Reno, Nevada, December 29.

Dr. Edward L. Boone,

Of the class of '26, Medical College of Virginia, who has been practicing for a while at Branchville, Va., has moved to Scottsburg, Va.

Georgia Now in Birth and Death Registration Areas.

Georgia has been admitted to the birth and death registration areas of the United States.

This has reduced to five the number of states outside the death registration area, and to seven the number outside the birth registration area.

Superintendent at Gill Memorial Hospital.

Miss Crystall J. Caldwell, formerly assistant superintendent of the Children's Hospital, in Philadelphia, is now superintendent of the Gill Memorial Eye, Ear and Throat Hospital, in Roanoke, Va.

Enlarged Clinic at College.

The enlarged pediatric clinic, which has been made possible by the Commonwealth Fund of New York, in addition to local help, was opened at the Medical College of Virginia, Richmond, late in January. Dr. Basil B. Jones, well known for his work at the Children's Memorial Clinic, this city, is in charge. This clinic is designed not to supplant any existing agencies but solely to supplement work of a similar nature in this community.

Post-Graduate Course in Specialties.

The Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va., announces its second Post-Graduate Course in Ophthalmology, Otology, Rhinology, Laryngology, Facio-Maxillary Surgery, Oral Surgery, Bronchoscopy and Esophagoscopy, to be held at that hospital on March the 19th to 24th. A number of specialists of national reputation have been secured to conduct this course. A matriculation fee of \$25.00 is made to defray the actual expenses of conducting this course. Applications should be sent the Hospital promptly.

Just a Reminder—

Of that Income Tax which has to be attended to on or before March the 15th. Failure to receive a blank does not excuse any one from making a return. Certain deductions are allowed for professional expenses. If not familiar with the rulings, make inquiry of your district collector of internal revenue.

Conference on Rheumatic Diseases.

A Conference on Rheumatic Diseases is to be held at Bath, England, on Thursday and Friday, May 10 and 11, 1928. Sir George Newman, Chief Medical Officer of the British Ministry of Health, has kindly consented to act as President of the Conference. There will be three Sessions: (1) Social Aspects, presided over by Lord Dawson, of Penn, Physician to H. M. King George; (2) Causation, presided over by Sir Humphry Rolleston

(Regius Professor of Physic, University of Cambridge), and (3) Treatment presided over by Sir E. Farquhar Buzzard (Regius Professor of Medicine, University of Oxford). The local Hon. Medical Secretary is Dr. Vincent Coates, 10, Circus, Bath, England.

Virginia Doctors Read Papers in South Carolina.

Dr. M. Pierce Rucker and Dr. William H. Higgins, both of Richmond, Va., were among the invited guests to present papers before the Malboro County, S. C., Medical Society, at its meeting in Bennettsville, January the 12th.

Dr. Reid White,

Lexington, Va., has been appointed physician to Washington and Lee University, in that place, succeeding the late Dr. Robert Glasgow.

Tuberculosis Workers' Institute.

A two weeks' course for tuberculosis workers is being conducted in Richmond, at the School of Social Work and Public Health, under the auspices of the Virginia Tuberculosis Association and the College of William and Mary.

Dr. Philip P. Jacobs, one of the pioneers in the National Tuberculosis Association, is Director of this institute, which is one of four he will hold in 1928. One of the other institutes will be at St. Louis and two on the Pacific Coast.

Twenty students, representing Virginia, South Carolina, Maryland, Pennsylvania and New York, are enrolled for this course.

Urological Association of South Carolina.

The above named association was organized the latter part of 1927, at a meeting held in Columbia. Officers are Dr. Milton Weinberg, Sumter, president; Dr. W. B. Lyles, Spartanburg, vice-president, and Dr. Hugh E. Wyman, Columbia, secretary.

New Type of Open-Air School in Paris.

An open-air school has recently been established in a thickly populated district of Paris. On admission each pupil is given a physical examination by a physician and a Binet-Simon mentality test, and he is then assigned to the school work which the examinations indicate he is fit for, no matter what his chronological age may be. Promotion depends on the results of later examinations, which are given every three months. The school was established on the initiative of Professor Alfred Binet, one of the originators of the Binet-Simon mentality tests.

Dr. Preston to Speak in Danville.

Dr. J. W. Preston, Roanoke, president of the Medical Society of Virginia, will address the Pittsylvania County and Danville Medical Society at its regular quarterly meeting in Danville, March the 13th. Dr. L. E. Fuller, of Witt, is president, and Dr. J. A. Hawkins, Danville, secretary of the Society.

Dr. Thomas Boyd Washington,

Of the class of '24, Medical College of Virginia, has returned to his home in Richmond, Va., after taking a course in genito-urinary surgery at the New York Polyclinic. He will be associated with Dr. A. L. Herring.

Dr. Bittle C. Keister,

Formerly of this State, but more recently of Washington, D. C., has located at Harrisonburg, Va., for the practice of his profession.

Doctors as Bank Directors.

The following doctors' names have been noted as members of the boards of directors for a number of Virginia banks: Dr. W. C. Powell, Petersburg; Dr. J. H. Mapp, Buena Vista; Dr. H. A. Spitler, Middleburg; Dr. Otis Marshall, Culpeper; Dr. C. S. Dodd, Petersburg; Dr. J. M. Williams, Petersburg; Dr. Granville Eastham, Rapidan; Dr. W. W. Wilkinson, La Crosse; Dr. C. P. Hutchison, Purcellville; Dr. T. W. Hankins, Fordwick; Dr. Harry T. Hopewell, Strasburg; Dr. Lewis Holladay, Orange; Dr. E. L. Marshall, Big Island; Dr. E. W. Brown, Washington; Dr. James G. Brown, Woodville; Dr. E. W. Twyman, Twymans Mill; Dr. J. P. Hankins, Unionville.

The U. S. Civil Service Commission,

Washington, D. C., announces the following open competitive examinations:

Junior Medical Officer (Interne); Social Worker (Psychiatric) and Junior Social Worker; and Graduate Nurse, Graduate Nurse (Visiting Duty) and Graduate Nurse (Junior Grade), applications for all of these to be rated as received by the Commission until June 30:

Assistant Medical Officer, Associate Medical Officer, Medical Officer, and Senior Medical Officer, applications to be rated as received by the Commission until June 29; and

Physiotherapy Aide, and Physiotherapy Pupil Aide, applications for these to be on file with the Commission, not later than February 25, April 21 and June 23, 1928.

Dr. Robert F. Cline

Has returned to his home in Winchester, Va., after spending a year in Chicago, where he has been taking post-graduate work.

New Children's Hospital in Atlanta.

The plans for a new hospital for children under 12 at Atlanta, Ga., are nearing completion. It will accept all types of cases except contagious diseases. The first unit will have fifty beds, of which forty-two will be for patients unable to pay. The hospital is made possible through the gift of the late Thomas Eggleston.

Dr. F. Musgrave Howell.

Who has been practicing in Lynchburg, Va., for some time, has moved to Hopewell, Va., and is located in City Point Court. He will continue the practice of his profession in that place.

An Invitation Has Been Issued

By the Medical Society of the District of Columbia to Virginia physicians visiting in Washington, D. C., to make their Society building at 1718 M Street, Northwest, headquarters while in that city. Here will be found a library containing current medical literature, daily lists of clinics held in the various hospitals and opportunities for making personal contacts with the local profession.

Dr. E. L. Caudill,

Recently of Narrows, Va., has moved to Elizabethton, Tenn., where he will be connected with the new hospital that is being built in that place and will be engaged in general practice and surgery.

Virginia Doctors Attend Meeting in Greenville, S. C.

Virginia doctors who attended the annual meeting of the Southern Section of the American Laryngological, Rhinological and Otolological Society in Greenville, S. C., on January the 28th, are: Drs. J. A. White and Clifton M. Miller, of Richmond; Dr. Clarence Porter Jones, of Newport News; Dr. H. S. Hedges, Charlottesville, and Dr. J. R. Gorman, Lynchburg.

Prevalence of Venereal Diseases.

In his recent report to Congress Surgeon General Cumming, of the U. S. Public Health Service, called attention to the importance of scientific studies which the Service is conducting in an effort to develop more effective measures of prevention and treatment of the venereal diseases. During the last fiscal year, there

were reported 196,000 cases of syphilis and 160,000 cases of gonorrhea. The number of Wassermann tests shows an increase of 25 per cent over the previous year. Over a period of many years, about 20 per cent of all patients treated by the Public Health Service in its Marine Hospitals have been ill as a result of the venereal diseases. State health departments show great variation in the efficiency of their work for venereal disease control. On the whole, the report states that facilities for treating indigent patients with venereal diseases are most inadequate in the small towns and rural districts of the various states.

Two Virginians Graduate From Army Medical School.

Lieutenants Jacob C. Harshbarger, of Port Republic, Va., and Marion W. Ransone, Hampton, Va., were among the forty-six officers who graduated from the Army Medical School, Washington, D. C., on January the 31st. Dr. Harshbarger graduated in medicine from the University of Virginia, Department of Medicine in 1926, and Dr. Ransone from the Medical College of Virginia, the same year.

International American Institute for the Protection of Childhood.

This institute, formally opened in Montevideo, June, 1927, in accordance with a plan adopted at the Fourth Pan-American Child Congress, held at Santiago, Chile, in 1924, is to serve as a center of information concerning child-welfare work on the American continent. Nine Latin-American countries have already joined it—Argentina, Bolivia, Brazil, Chile, Cuba, Ecuador, Peru, Uruguay, and Venezuela. The United States was represented at the opening ceremonies and on the governing council, but may not become an actual member until Congress authorizes such action.

Dr. R. Wilson Selby,

Recently of Middleburg, Va., has just moved to Dover, Pa., where he has bought the home and practice of Dr. Curtis J. Hamme. Dr. Hamme has gone to Edinburg, Texas, where he will be interested in growing citrus fruit and will probably continue the practice of medicine.

Dr. Cumming Re-appointed Surgeon-General.

Dr. Hugh S. Cumming, of Virginia, was recently re-nominated by the President to be surgeon-general of the U. S. Public Health Service. We understand that this nomination

was confirmed by the Senate without going to a Committee.

Dr. Randolph McCutcheon.

Of the class of '24. Medical College of Virginia, is now located at Taplin, W. Va.

The National Society for the Prevention of Blindness.

The new name just adopted by the former National Committee for the Prevention of Blindness, has issued a report which shows that their organization has grown from two men and one woman in 1907 to 25,000 members at the beginning of 1928. It now costs more than \$100,000 a year to carry on the work of preventing blindness and conserving vision generally in the United States. Some of the other interesting statements in this report are that it costs on an average ten times as much to provide an education for a blind child as for one with normal sight; that the frequency of blindness from babies' sore eyes has been reduced by fifty per cent during the last twenty years; that other serious causes of blindness have developed in America, chief among these being the eye hazards of industrial occupations—eye accidents, eye diseases and eyestrain incidental to the daily work of millions of men and women. Of the 100,000 blind persons in the country, 15,000 are believed to have lost their sight in this way. Among the other serious causes of blindness are trachoma, the venereal diseases, and the accident hazards in public and home life. Mr. Lewis H. Carris, the managing director of the Society, states that the organization is now directing its efforts against all of the above named causes of blindness as well as ophthalmia neonatorum and is devoting its resources to public education concerning general care of the eyes and conservation of vision, so as to reduce the proportion of our population handicapped by seriously defective vision.

Dr. Emmanuel U. Wallerstein.

Richmond, has just been elected a member of the board of governors of Jefferson Club, this city for a two-year term.

Drs. Peters and Handy Associated.

Drs. William B. Peters and Frank E. Handy, Appalachia, Va., announce the forming of a partnership for the practice of medicine and surgery. Their offices are in Peake Building on West Main Street, that place.

Heads Richmond T. B. Association.

Dr. Garnett Nelson, Richmond, has been re-

elected president of the Richmond Tuberculosis Association for 1928.

Italy Decrees Compulsory Tuberculosis Insurance.

Compulsory insurance against tuberculosis has recently been decreed by the Italian Government for all manual workers, whose numbers are estimated at seven and a half millions. The cost, it is expected, will be 300,000,000 lire a year, this fund to be supplied by monthly contributions of 4 lire for each worker, paid in equal shares by the worker and his employer. Equipment of 20,000 beds is planned for the first ten years of the functioning of the decree.

Wanted—

By technician, extra laboratory work to do after 4 P. M. Thoroughly experienced in all routine examinations including Wassermanns. Willing to work on salary or commission basis. Address "No. 102, care VIRGINIA MEDICAL MONTHLY." (Adv.)

Wanted:

An experienced psychiatrist as assistant in Glenwood Park Sanitarium, Greensboro, N. C. Address W. C. Ashworth, M. D., owner, Greensboro, N. C. (Adv.)

Obituary

Dr. Isaac Curd,

Richmond, Va., died February 2nd, at his home in this city, aged 92 years. After graduating from Hampden-Sidney College, he studied medicine at and graduated from the Medical College of Virginia, Richmond. He served the Confederacy throughout the War Between the States. Several children survive him.

Dr. Benjamin Chapman Goodwin

Died at his home near Buckner, Va., January the 18th, in the 85th year of his age. He graduated from the Medical College of Virginia in 1865 and practiced for some time in Arkansas, returning to Virginia in 1894 and continuing the practice of his profession here. His wife and two daughters survive him.

Dr. Gregory Ackermann,

Wheeling, W. Va., died in that city on January the 16th, aged seventy-five years. He was one of the oldest members of the West Virginia State Medical Association and an honorary member of that society.

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A PRELIMINARY REPORT UPON THE MIDWIFE SITUATION IN VIRGINIA.*

By GREER BAUGHMAN, M. D., F. A. C. S., Richmond, Va.
Professor of Obstetrics, Medical College of Virginia.

The material upon which this paper is based was obtained from a study of the midwife problem in Virginia in conjunction with Drs. H. D. Howe, of Hampton; J. Bolling Jones, of Petersburg; William R. Martin, of Charlotte Court House; H. G. Middlekauff, of Weyers Cave; L. A. Calkins, of the University of Virginia, and Mary E. Brydon, of Richmond, who were appointed by our President, Dr. J. Shelton Horsley, to study the problem and report to the Medical Society of Virginia.

I wish to thank these zealous colleagues for their interest in the work and to assure the society that the conclusions that have been presented to them are the result of a considerable amount of work and represent the combined thought of the committee.

We found that the 2,431 doctors of the state reported 68.2 per cent of the 56,583 births, while the 4,840 registered midwives reported 31.8 per cent of the births in 1926. There were 1,555 midwives of the 4,840 who reported no births during the year, while 2,052 reported less than five apiece. These two groups may be looked upon as neighbors or friends who helped in an emergency or who were too old to engage in active midwife work. There remain 1,233 who might be considered to be in fairly active practice. Of these there were twenty who delivered more than fifty and only three who delivered more than one hundred.

One of these was located in Lynchburg, one in Petersburg and one in Newport News.

We found that more than twice as many people live in rural Virginia, that is, in towns of less than one thousand inhabitants and the country, than in towns of one thousand and in the cities. With the doctors it is exactly opposite, 1,624 live in cities or towns of 1,000 or

over, while only 807 live in towns less than 1,000 and in the country. In the cities and large towns there is one doctor to 469 people, while in the small towns and the country one doctor should have 2,079 clients.

Studied from another angle, we found that the area of the cities and towns of over one thousand was 464 square miles, while the rest of the state contains 1,736 square miles.

With the above facts before us, it seemed folly to advocate the extermination of the midwives. The women of the cities would suffer but little, because there are enough doctors in the cities to cope with the situation; besides, the dispensaries, medical students and hospitals take care of many charity cases. In fact, in the cities, except in a few instances, because of local conditions, the midwife is not a factor to be considered. In the country, on the other hand, with few doctors, great distances to travel, and a tremendous obstetrical service, much of which would be absolute charity, the doctors would work themselves to death and die broke.

We believe that midwives are necessary at the present time.

The State Board of Health has done a splendid piece of work by reducing the number of midwives in the State from nine thousand very ignorant and dirty creatures, to four thousand eight hundred and forty, only one thousand two hundred and thirty-three of whom are really active. Most of these women have the rudiments of cleanliness, if nothing else. Some few of these women are really competent.

The preference of women to act in the capacity of accouchers has a long and honorable history. It is only in recent years that men have attempted to preempt this field of practice. When I studied obstetrics, a very elaborate technic was described, by which one could catheterize a woman during delivery under a sheet without exposing her. We were also instructed in methods of examining the women and delivering while the vulva was draped.

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

On the continent of Europe today, normal deliveries are done by well-trained midwives, while the doctor is called in only for a serious emergency.

This problem is an economic one as well. The doctor has not the time to sit on a normal primipara for twenty-four hours to the neglect of his other patients without adequate remuneration. The midwife, who frequently is a neighbor, is willing to spend her time for the prominence that it gives to her in the community, for the friendliness that she has for the neighbor, as well as for a chance to recount or to hear the latest gossip, and will consider herself well paid if she receives only her meals.

The solution of the midwife problem is along the lines that the State Board of Health has already started—to try to educate the public as to prenatal care by means of courses of instruction.

We wish to go a step further and urge the establishment of dispensaries at strategic points over the State in general, or private hospitals, where one of the local doctors can meet the pregnant women who have been drummed up by the county health nurse, examine them, their urine, and give them instructions as to the way to live during their pregnancy. A woman with good prenatal care is more than half delivered.

The toxemias of pregnancy associated with convulsions will account for about half of obstetrical deaths. The cases that attend our dispensary do not have convulsions, because we take their albumen and raised blood pressure seriously, treat them, and deliver prematurely if necessary. Prenatal care will do more than reduce the obstetrical mortality; it will gradually do away with the midwives by teaching the people that the doctor can relieve them from death and discomfort.

The feeder for such a dispensary is a high-grade county nurse, who will be careful to solicit only those women who have no doctor.

The pathological cases will, before long, come to the hospital or be treated by local doctors. It will be but a short time before the normal cases will be seeking hospitalization, or will demand medical delivery.

The full pay cases can take care of themselves; the half-pay and the indigent cases are the problems.

If a definite problem and a method of solu-

tion is presented to a community, the money for carrying out the plan will soon be procured.

Churches are erected in the poorest of communities to save souls. Hospitals will be erected and maintained to save their bodies and to make the future citizens healthy.

26 North Laurel Street.

DISCUSSION.

DR. MARY E. BRYDON, *State Board of Health, Richmond*:—(First part of this discussion omitted, as the reporter was absent from the room). This committee has opened our eyes to one thing that the nurse can do. I have talked it over with the nurses and find them delighted at the prospect. The plan is that, in-so-far as she is able, in the small towns and rural districts as soon as the information is sent her, the nurse is to actually take the pregnant woman to her chosen family physician. The question that will come up to you as practicing physicians in the State is in regard to the indigent cases. I mean, if the nurse brings to you a patient and tells you she is an indigent case, if you find she is a normal case, will you be willing to give that woman prenatal instruction even if she has arranged to be delivered by a midwife? I hope that you will be willing to do so, and I hope that you will permit the midwife also to come to your office, because one of the recommendations of this committee is that every midwife be under the supervision of physicians. That is our aim, and I hope that with your help it may be eventually carried out.

DR. BAUGHMAN, closing the discussion: I should like to have some of you men say whether we are on the right track or not. We have done a lot of work on this report, and we have some country men on the committee, but we do not want to keep going in the direction, as indicated by the report, if we are on the wrong track. I should like to have you say something adverse to this if you feel that way. If we are right, say so, and give us your co-operation.

(DR. HORSLEY, President, asked for an expression of approval. Several ayes; no noes.)

THE TREATMENT OF DIABETES IN YOUNG CHILDREN.*

By CLAIRBORNE WILLCOX, M. D., Norfolk, Va.

It is my purpose in this paper to present to you the treatment of diabetes in young children. I chose this subject not because I had anything new to offer on diabetes, but because, in the last four years, I have had four cases in children under two years of age and from them have learned that, while the general problem is the same, in children of this age there are difficulties not encountered in adults and older children. These special features I will endeavor to emphasize.

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

In the preinsulin days it was practically an established fact that a young child with diabetes was doomed to early death, an average life of little more than two years, from date of onset, under the most favorable circumstances and what of life it had was in a most unhappy condition of under nutrition and invalidism. Insulin, as you know, has brought about a complete change, lengthening their expectancy, enabling them to live comfortably, to carry on normal activity and growth, all with the possibility of great improvement and, in the light of experimental work, indicating regeneration of the pancreas, even with hope of ultimate cure. In contrast to adults, at least 90 per cent of children require insulin and probably of the very young 100 per cent do.

Joslin gives us a good idea of the results of treatment of diabetic children in the past and present in a paper published in the *Journal of the American Medical Association* in January, 1927. He reports 395 children with onset of diabetes before 15 years of age and divides them into three periods as follows: 1898 to 1914, 60 cases of which only one is still living; 1914 to 1922, 169 cases of which there are 52 living; 1922-1926, 165 cases of which 147 are still living. Those who have died in the insulin period have outlived those in the other two periods. In the same article he says that the child diabetic is deserving of unusual consideration and care because it is the pure diabetic, the uncomplicated case, from which we may expect to learn much as to prognosis, possible cure, diabetic cause of death, etc., and suggests that a child under one year of age developing diabetes is worthy of a medical endowment.

The indications for the treatment of diabetes in children are the same as in adults, only more urgent because the disease is more acute. Diet which will take care of the patient's needs for activity and growth plus enough insulin to make the extra food available and keep the patient aglycosuric with normal blood sugar to permit pancreatic rest, and possible regeneration of the islands of Langerhans, is the essential part of the treatment; to which must be added general hygiene protection against coma, hypoglycemia, infections of all kinds and gastro-intestinal upsets.

DIET. In working out a diabetic diet we must have several factors in mind, viz.: protein requirements, total caloric requirements, and

relation between ketogenic and anti-ketogenic substances. The diet should be calculated on the expected weight for age rather than the actual weight which is usually subnormal. Adults require two-thirds of a gram of protein per kilo of body weight but children, because of the factor of growth, require more and, while there is not universal accord on the subject, it is probably best to allow from one and one-half to three grams per kilo. One of my cases is doing well on two while another requires three. The necessary protein having been determined the balance of the diet is distributed between the fat and carbohydrates in a proportion not greater than 1.5 to 1. Some have and do use higher fats, but young children being particularly liable to acidosis and gastro-intestinal upsets it has seemed wise not to go beyond the above ratio. In working out our proportions it is necessary to remember that 58 per cent of the protein and 10 per cent of the fat must be reckoned as glucose and 46 per cent of the protein as fat.

To begin with, the patient is put on a maintenance diet, often well supplied by milk and orange juice, for a few days without insulin. The 24-hour specimens of urine are examined and the amount of insulin determined by the amount of glucose excreted—one unit of insulin to each two grams of glucose in the ordinary case. From this the diet is gradually increased to the final one as determined by the patient's caloric needs, enough insulin being given to take care of the added food. The time of feeding is important. Young children usually need more than three feedings daily. It is desirable too to distribute the food in such a manner that the bulk of the carbohydrates will be taken at meals preceded by insulin. Individuals require special arrangements as shown by one of my patients who persisted in having a mild insulin reaction at four P. M., eight hours after her morning dose of insulin with two meals intervening. The addition of orange juice given at three P. M. prevented this occurrence from continuing.

The young child is normally on a somewhat restricted diet, the diabetic no less so and this, together with the tendency of these little patients to tire of this or that food, often taxes one's ingenuity in selecting a diet.

INSULIN. So far as is known at present insulin is not a cure for diabetes though invaluable in conjunction with proper dietetic

measures, but its use, because of certain dangers, necessitates even more careful dieting than without it.

Invaluable as insulin is in diabetes in general, it is even more so in children because, while a large percentage of adults can get along on diet alone, nearly all children require insulin too and with it can live, grow and follow their normal activities. I think too it is fair to say that diabetic children properly treated, in appearance at least, equal or even surpass normal ones. And while it is yet too early to make positive statements, insulin certainly offers these unfortunate children some hope of cure.

The question of dosage is an individual one and must be worked out in each case. In general one unit of insulin will burn from one to two grams of glucose. Determination of the amount of sugar in the 24-hour specimen gives the clue to the proper dosage. It should be given with care and it is well to start with less than the estimated needs, gradually increasing the dose, being guided by urinalysis and blood sugar determinations. The time of administration is important. If 10 units or less is the daily requirement it can usually be given in a single dose 15 minutes before breakfast. From 10 to 30 units in two doses at 12-hour intervals, before breakfast and supper. More than this is probably best given in three doses.

HYPOGLYCEMIA (insulin shock): When enough insulin is given to reduce the blood sugar below normal, a characteristic train of symptoms follow—hunger, restlessness, sweating, strabismus, tachycardia and finally, convulsions and collapse. Fortunately, we have a specific treatment for the condition, viz.: the administration of sugar as such or in substances in which it is readily available. Administration of glucose by mouth is usually all that is necessary, but in severe cases it often has to be given by rectum, intraperitoneally or intravenously. In most instances, response to treatment is prompt as indicated by the disappearance of symptoms, but not always as in the case of one of my patients who went into insulin shock three and one-half hours after her usual breakfast and insulin. She required six ounces of orange juice, two teaspoonfuls of cane sugar, several cakes and nearly an hour to be relieved. Sometimes the question arises—are certain symptoms due to

hypoglycemia? Where there is any doubt, it is wise to give orange juice immediately.

It is said that insulin shock occurs whenever the blood sugar becomes subnormal, but there is considerable variation in the blood sugar level at which it does occur and I have seen many times blood sugars below normal without symptoms.

COMA. Many diabetic children are in or have impending coma when first seen and their tendency to acidosis makes it more frequent. When it occurs, the patient should be put to bed, warmth applied, an enema given, fluids forced, and urinalysis and blood sugar done. From 10 to 30 units of insulin are given, repeating at two hour intervals till blood sugar becomes normal. The patient is then put on a diet plus insulin as in an ordinary case of diabetes. Insulin is specific for coma and I know of nothing that so nearly resembles actually pulling your patient back from the grave. There is a great deal of variation in the amount of insulin required for these cases. One of mine developing every symptom of coma after two years of treatment required only a single dose of 15 units, while another in coma when first seen with blood sugar of 60 required 80 units.

One of the problems that insulin has given us is the optimum state of nutrition for a diabetic child. I am inclined to agree with those who believe that we should try to keep them normal in weight and height. Several well known workers have shown that under these conditions they do well, often gaining tolerance.

We must be watchful of our diabetic children's general health insuring them adequate rest, play and fresh air. We must care particularly for infected teeth and tonsils, guard them against infections of all kinds and gastrointestinal upsets. One of my cases with badly infected tonsils was almost at a standstill. The tonsils were removed without anaesthesia either local or general with surprisingly little discomfort and almost no interruption of her diabetic regime. Since the operation this child has improved much more rapidly.

Success in the treatment of young children with diabetes is largely dependent upon education of the parents. They must be taught food values, to weigh and measure diets, to administer insulin, to do urinalysis, to recognize the symptoms of hypoglycemia and coma

and how to combat them. All of this requires time and much patience but it is absolutely necessary to teach these parents all we possibly can about the disease. It is advisable to get them a book on the subject. (Joslin's Manual for Diabetics is a useful one).

The ideal is to get your patient on a diet and insulin dosage on which it will live, grow and develop with a normal blood sugar, permitting pancreatic rest and possible regeneration of the islands of Langerhans. Practically, this ideal in young children is well nigh unattainable because of certain difficulties and a more narrow margin of safety. Normal children below two years are subject to certain dietetic restrictions which are certainly no less applicable to diabetics, making selection of diet more difficult. They are more liable to acidosis and gastro-intestinal upsets. They do not recognize symptoms of hypoglycemia, so much more care has to be exercised to guard against and correct them, which adult diabetics can do for themselves. If we are too zealous in keeping our patients sugar free we may go too far and, to be safe, it is almost necessary to allow a trace of sugar in urine once or twice daily.

Catheterization with its dangers is more often necessary in children. The value of blood sugar estimation is great, but any one who has repeatedly to withdraw 5 c.c. of blood from the vein of a child of 18 months will testify to the technical difficulties.

In conclusion, let me say that, while the ideal is not often attained in these cases, by aspiring to it we can carry them along (already children with diabetes in the insulin period have outlived their expectancy before it), comfortable, well nourished and happy to an age of greater co-operation, always with the hope that with improved methods and greater knowledge we will do better.

812-814 Medical Arts Building.

DISCUSSION

DR. M. S. FITCHETT, *Norfolk*: I think one very important and interesting point Dr. Willcox has brought out is that he has seen four cases of diabetes occurring under two years of age. I have given considerable effort to finding out the incidence or frequency of diabetes in children under two years of age, and I have been unable to arrive at any definite idea as to how frequent it might be. I believe that I have been unable to find reports in the literature that has been available to me during the past two or three years, of more than eight or ten cases; and I think that his experience of having seen four cases under two years of age is cer-

tainly very extraordinary. Dr. Joslin says that in his large series of diabetics about seven or eight per cent of them have been in children. It is impossible to tell from any statement he has made what percentage of those children have been under two years of age. He reports in his case reports only one or two cases under two years of age.

Speaking of this infantile diabetes, I think we might say that if the true cause of diabetes is ever discovered it will undoubtedly be discovered in the study of these early infantile cases, chiefly because of the fact that these cases are uncomplicated—uncomplicated by the degenerative diseases that are common in older people. The same thing, I think, can be expected in the true pathology that might be developed as a constant finding in diabetes, for the same reason. Dr. Warren, in Boston, has recently published a report on the pathology in ten cases of juvenile diabetes, and he states that he found actual pathology in only two cases—in one in the pancreas, which he describes as being lymphocytic infiltration; in the other case, three years of age, he says there was a definite fibrosis of the islands.

Speaking of these very young cases, the symptoms are virtually the same as in older people. The complications are said to be more frequent, possibly with the exception of gangrene. Possibly the most frequent complication of these cases is coma and skin complications. As to the treatment, I agree with the general principles of the treatment Dr. Willcox uses. I doubt if it is possible to attain in these cases of young children what is said to be the ideal to be strived for in any diabetic condition—that is, the maintenance of a normal blood sugar. I agree with Dr. Willcox that it is necessary in these cases, probably, to have a trace of sugar at least once a day.

I have had only one case, which I started treating about two and a half years ago at eighteen months of age. The child has grown and developed physically and mentally. I have had the complete cooperation of the child's mother, who has examined a specimen of every urine passed during the two and a half years and has a very accurate record of the findings.

DR. WILLCOX, closing the discussion: Theoretically, diabetics should be kept sugar free with a normal blood sugar, and yet the case Dr. Fitchett mentioned and the two I reported, in which we have allowed a trace of sugar in the urine, have continued to improve. They have grown, increased in weight and height, developed mentally and in every way, and seemed to continue to improve under those conditions.

END-RESULTS AFTER HARELIP OPERATIONS.*

By JOHN S. HORSLEY, JR., M. D., Richmond, Va.
Head of the Department of Plastic Surgery of St. Elizabeth's Hospital.

Harelip is a congenital malformation due to failure of proper closure of the embryonic clefts which enter into the formation of the lip. The fissures may occur on the right or left side of the midline, giving rise to the variety known as unilateral or single harelip.

*Read before the fifty-eighth annual meeting of the Medical Society of Virginia, at Petersburg, October 18-20, 1927.

Sometimes a fissure occurs on each side of the midline, and this constitutes a bilateral or double harelip. A very rare form may appear in the midline, causing a median harelip. Only seldom is there associated with harelip a deformity of the lower lip.

Single and double harelips may be complete or incomplete. A wide degree of variation of the deformity may occur. In my experience the most common types in order of frequency are: (1) complete unilateral, (2) complete bilateral, and (3) incomplete unilateral, in which there is a flared deformity of the nos-

tril and presents a conspicuous fold. The degree of development of the lip is a very important factor both from the operative and cosmetic points of view.

TIME FOR OPERATION

At birth the deviation from normal is quite marked, but not as marked as it will be later on if the harelip is allowed to remain open or is improperly closed. Therefore, the earlier and the more accurately the lip is repaired, the better the ultimate result will be. Early closure of the lip will improve the appear-

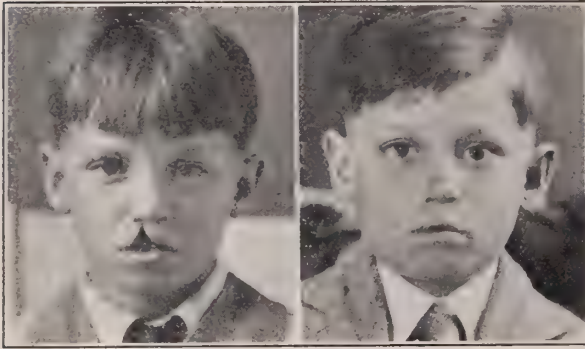


Fig. 1—Master L. D., age 8 years on admission. Right incomplete unilateral harelip with slight deformity of right nostril.

Fig. 2—Master L. D., nine months after operation for correction of harelip and deformed right nostril.



Fig. 3—Master A. S., age 4 years on admission. Left complete unilateral harelip with flattened and flared deformity of left nostril. This preliminary photograph appeared in an article "Harelip and Cleft Palate," by the author, "Virginia Medical Monthly," March, 1927.

Fig. 4—Master A. S., sixteen months after operation for correction of left harelip and deformed left nostril.

tril and abnormal tissue above the actual cleft (Figures 1, 3, 5, 7 and 9).

This paper will include primarily a discussion of single harelips. In complete single harelip the fissure extends into the nostril. The width and shape of the fissure varies considerably from a narrow margin to a wide triangular or quadrilateral defect. When the child cries or smiles the width of the fissure is increased. The margins are lined by mucous membrane, which is continuous with that of the under surface of the lip. Towards the nostril the mucous lining usually becomes narrower and tapers off to a point. Often the mucous membrane extends into the nostril. A narrow strip of skin at the upper end of the cleft is present on each side; the nostril itself is flared and flattened to an extent depending upon the width of the fissure in the lip. The outer margin of the nostril is usually stretched and thinner than normal. The lip may be closely or only loosely attached to the maxilla and of unequal thickness on the two sides of the fissure. The frenum is frequently

ance of the face and assure proper facial development and contour. The most desirable time to correct the harelip is within the first few weeks after birth. If there is an associated cleft in the anterior alveolar process, this should be closed before the lip is sutured, unless the alveolar fissure is very narrow.

Before any attempt is made to correct this deformity, it is highly important to see that the nutrition of the patient is at its best. Rickets, secondary anemia, upper respiratory and middle ear infections are frequently causes for postponing such an operation. Babies who have been fed entirely or largely on condensed milk or preparations containing a high carbohydrate content and an improper protein and fat balance may look well, but careful examination will show flabby tissues, and operations upon such babies will usually give rather severe post-operative reactions and in a great many cases an unsatisfactory operative result. It is usually unwise to change markedly the customary feeding formula of a baby

immediately preceding or following such an operation, as a change may upset him.

TYPES OF OPERATIONS

The operation which I perform for single harelip is a modification of the Rose method. Before the lip is repaired it is always important to have a good foundation for the lip to rest upon and not one that produces marked



Fig. 5—Master L. M., age 7 months on admission. Right complete unilateral harelip and cleft palate with marked flattened and flared deformity of right nostril and protruding anterior alveolar process.

Fig. 6—Master L. M., thirteen months after operation for correction of cleft of anterior alveolar process, harelip and deformed right nostril.

irregularities and constant tension. If the alveolar process is cleft, and particularly if there is a marked protrusion of one of these processes, this deformity should be corrected



Fig. 7—Baby girl, N. G., four months old on admission. Left complete unilateral harelip and cleft palate with marked flattened and flared deformity of the left nostril and a protruding anterior alveolar process. This preliminary photograph appeared in an article "Harelip and Cleft Palate," by the author, "Virginia Medical Monthly," March, 1927.

Fig. 8—Baby girl, N. G., two years after first operation for correction of harelip, deformed nostril and cleft of anterior process. At the time of the operation on the cleft palate, a small secondary operation was performed on the left nostril.

first. Thorough mobilization of the surrounding tissues from within the mouth, keeping the dissection close to the maxilla, is very important in the repair of harelip in order to se-

cure union without points of tension. The attachments of the deformed nostril, as well as the lip, must be dissected free from the maxillary bone. A successful operation for harelip requires: (1) that the muco-cutaneous border of the lip be accurately approximated; (2) that after suturing, the lip be free from tension; (3) that the mucosa of the lip at the point of suture be equally and slightly over-corrected; (4) that the accompanying deformity of the nostril be corrected. In many cases, in order to relieve tension on the line of suture, adhesive strips may be applied to the face in the so-called "butterfly" fashion and kept in place during the period of healing.

SECONDARY OPERATIONS

Frequently I encounter patients upon whom the result of an operation is not as good as it



Fig. 9—Baby girl, A. C., two years old on admission. Right complete unilateral harelip and cleft palate with flared and flattened deformity of right nostril and marked protrusion of the anterior alveolar process.

Fig. 10—Baby girl, A. C., eight months after repair of harelip, deformity of right nostril and cleft in anterior alveolar process.

might be. Often these cases are sent to me primarily for the closure of a cleft palate. The lip has usually been operated upon in infancy, months or years previously. Most of these patients are young adults, especially young women. Although satisfied during infancy and childhood with a poorly repaired harelip, when they are older and learn that their appearance can be improved greatly by a relatively small operation, they naturally are anxious to have this improvement made. Sometimes the results of my own primary operations have not entirely satisfied me. In such cases I perform small secondary operations in order to improve the appearance of the patient. In some cases of extreme deformity, especially in double harelip and where a markedly protruding alveolar process exists,

it is often impossible to obtain an entirely satisfactory result from the primary operation alone. These more severe deformities are customarily accompanied by a cleft palate, and when it is repaired the small secondary lip operation can be performed at the same time



Fig. 11—Miss M. G. on admission. Notched deformity, conspicuous lip scars and irregular redundancy of lip mucosa following attempt at repair of left incomplete unilateral harelip elsewhere during infancy.

Fig. 12—Miss M. G. six months after secondary operation for correction of deformity following unsuccessful repair of harelip elsewhere.

without an added risk or inconvenience to the patient.

In my experience, the most common conditions for which secondary operations have to be done are, in order of their frequency, (1) a notched lip, (2) a flared deformity of the nostril associated with the harelip, (3) a conspicuous irregular scar with an uneven mucocutaneous line, and (4) occasionally redundancy of the mucous membrane of the lip margin (Figure 11). The most difficult of these so-called "secondary deformities" to correct is the flattened and flared nostril.

RESULTS

The end-results following harelip operations cannot be accurately ascertained under six months' time. The accompanying photographs will illustrate the results in several types of single harelip deformities. (Figures 2, 4, 6, 8, 10 and 12).

The following points are important to obtain good end-results after harelip operations:

1. The primary operation should be performed as early as possible, provided the general condition of the patient is good.

2. A carefully performed initial operation is necessary, the lip margins being accurately approximated without undue tension.

3. Painsstaking attention should be paid to the post-operative course.

4. Two weeks after the patient is discharged from the hospital, massage of the operative area with cocoa butter for several minutes twice daily will soften up the scar and greatly improve the appearance and function of the area operated upon.

5. Routine check-up examinations of all patients from six to twelve months after operation should be made and, if indicated, secondary operations performed.

617 West Grace Street.

DISCUSSION.

DR. W. H. GOODWIN, *University*: I have been very much interested in the plastic work of Dr. Horsley and results of his recent work have been excellent. I was much impressed with the good result obtained in the case with such a bad unilateral cleft and particularly with the secondary operation.

Plastic surgery is not an easy branch of the art. It requires training and skill and also much patience on the part of the surgeon as well as patience on the part of the parents of the babies with harelip and cleft palate. Dr. Horsley brought out clearly the errors of development in these cases and the various types of them, and emphasized particularly the unilateral harelip or cleft lip, as it is sometimes called. There is a great diversity of technique in the repair of these lips, but after all the most simple method is the best. The complicated flap operations are sometimes necessary but are liable to lead us into trouble. As physicians, we should urge operation at the earliest possible time, since function and cosmetic results are better attained. Since these babies with harelips, and particularly if complicated with a cleft palate, nurse very poorly, they are usually in a poor state of nutrition and the mother must be taught the necessity of feeding them with a medicine dropper or spoon. Usually the baby can be gotten in condition for operation better and quicker if they are placed in the care of a pediatrician, preferably in the hospital. When the child with harelip and cleft palate grows old enough for self-realization he becomes very sensitive about the looks and defective speech, and he is badly handicapped for making a suitable place for himself in the world.

As Dr. Horsley brought out, the most important part of the operation is the mobilization of tissue, particularly the alae nasi and the septum of the nose. The alae nasi must be separated from the cheek widely in order to get this corrected. Then we must bear in mind the great importance of the sphincter-like muscle, the orbicularis, and must expose the muscle tissue. Otherwise we shall not have very good results. Tension is always to be avoided. Dr. Horsley's results as seen here on the screen are certainly very good as regards suture lines, it seems to me.

With a bilateral cleft lip, with outstanding premaxilla, the condition is even more unsightly and the technique of repair even more difficult. The steps are essentially the same for all flaps, but we have to contend there with this outstanding premaxilla. Often it is impossible to get it back into place. One who has seen a premaxilla removed knows what a terrible deformity it gives later on in the flat lip and flat nose. Often it is well to divide the vomer by triangular incision, pushing the

premaxilla back. Often I have found it wise to divide the alveolar border.

I was pleased to hear Dr. Horsley discuss the importance of a teat-like projection instead of a smooth vermilion border, which looks well immediately after completion of the operation but is so liable to result in a groove due to the inevitable cicatricial contraction.

DR. CLIFTON M. MILLER, *Richmond*: I should like to ask if Dr. Horsley has had any experience with the Brophy and Carnody operation. I have never seen anybody else do the operation and get the results they do with as low mortality. Other people do not seem to be able to do the operation without a high mortality.

DR. HORSLEY, closing the discussion: I thank Dr. Goodwin for his very free discussion.

Answering Dr. Miller's question, I have not used the Brophy operation, because the modification of the Rose method is so much simpler and in my hands can be performed more rapidly. In closing, I might add that in the hundred or more harelip and cleft palate operations which I have performed, there have been no deaths.

A CLINICAL STUDY OF HYPOTENSION.*

By WARREN T. VAUGHAN, M. D., *Richmond, Va.*

Discussions of blood pressure in health and in disease have met the drawback that there is no unanimity concerning the normal blood pressure range. The older conception of blood pressure readings as corresponding to one hundred plus the age has passed into the discard and now a pressure of over 145 at any age is usually considered unphysiologic. Not long ago a blood pressure below 120 was classed as hypotension and while the limit is now placed ten points lower, by most observers, there is still some divergence of opinion. An added difficulty is encountered in the literature in that writers on hypotension have used different lower limits for normal pressure. Their statistical enumerations are therefore not subject to direct comparison.

We may briefly summarize the average normal blood pressure changes in man as follows: the systolic blood pressure of new born infants runs between 45 and 55 millimeters mercury, the diastolic about fifteen points lower. It increases daily after birth until on the tenth day it reaches an average of about 78 millimeters systolic. The greatest rise takes place during the first three days. From ages three to ten the average systolic pressure runs from 90 to 100 millimeters. Faber and James found hypotension to be rather common in children, particularly in asthmatics. From eleven to fourteen years the average systolic runs in boys around 107, diastolic 71, in girls, 106/63. Up

to eleven years the mean systolic pressure rises uniformly with age. After puberty a more rapid increase develops. The average adult level is reached in both sexes between the ages of seventeen and twenty. In the early adult years there is evidence of a slight lowering of pressure, perhaps slightly more marked in men than in women. Little support is found for the statement that the pressure in healthy persons increases as the years go by. It remains practically constant until age forty after which the figures for healthy women are a little higher than for men. The total rise due to age and increasing weight is usually not more than 15 millimeters. The relatively wide variations from these normal averages in apparently normal individuals is still to be explained. It seems probable that heredity plays some part. Race is also a factor, the systolic pressure of Chinese, for example, being 20 to 30 millimeters less than of Caucasians. The pulse pressure, however, is the same.

Hypotension does occur in otherwise apparently healthy individuals. Indeed, hypotension without other evidence of disease appears to be a desirable attribute. Fisher of The Northwestern Mutual Life Insurance Company found that in their hypotension series the death rate was only 35 per cent of the expected mortality as contrasted with their general mortality of 80 per cent of the expected. Muhlberg of the Union Central Life Insurance Company remarks that, "There appears to be no doubt of the fact that a low blood pressure past the age of fifty unassociated with any organic lesion to account for this low blood pressure is the best criterion that we possess that the individual will live beyond his normal expectancy." It has been remarked that often the hypotensives who in their earlier adult years have some symptoms of asthenia, later, when their blood pressures rise to around the usual normal, are in much better physical and mental condition than they were formally or than are other adults of the same age.

Barach, in a study of 655 healthy, young adults found twenty-three with systolic pressures between 100 and 110 and seven between 90 and 100. Thus, 4.5 per cent showed hypotension. In a series of 31,596 recruits examined at Camp Sherman, 5.5 per cent showed hypotension without cardiovascular lesion or other organic disease. Of 1,100 freshmen examined at the Carnegie Institute in 1924, 2.5 per cent presented hypotension.

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Alvarez, examining 6,000 men in the University of California, found 2.2 per cent of hypotensives. We may say that hypotension, systolic pressure below 110, appears to occur in about 3 per cent of apparently healthy, normal white adults.

In my own series of 3,000 routine physical examinations, 118 or 3.9 per cent were found to have systolic blood pressures below 110. This series differs from those just mentioned in that practically all of these 3,000 had symptoms of one sort or another, sufficient to justify their consulting a physician for study.

Of the 118 cases of hypotension, blood pressure below 110, which formed the basis of this study, eight carried a systolic pressure of 88 or below, thirty ran from 90 to 99, fifty from 100 to 104 and thirty from 105 to 109. In 3,000 routine physical examinations, 0.26 per cent ran a systolic pressure below 90; 1 per cent from 90 to 99; 1.67 per cent between 100 and 104; and 1 per cent between 105 and 109; 1.26 per cent showed systolic pressure below 100. In the remainder of this discussion we have eliminated those cases of pressure from 105 to 110 and have included those showing pressures of 104 or below. All cases in this series were adults.

The extreme hypotensions are of especial interest. Most of them had no symptoms referable to the hypotension. The diagnoses and pressures were as follows: Blood pressure 80/20—diagnosis, neurasthenia. B. P. 80/56—diagnosis, bronze diabetes, chronic myocarditis. B. P. 88/54—diagnosis, obesity; B. P. 88/52—diagnosis, visceroptosis, mucous colitis, achylia gastrica, chronic sinusitis; B. P. 64/65—diagnosis, congestive heart failure, lobar pneumonia, arteriosclerosis, diabetes mellitus; B. P. 82/52—diagnosis, obesity; B. P. 86/55, diagnosis, convalescent from acute ulcerative colitis. Inanition. Of these eight cases, three were seriously ill and five were symptom-free or nearly so. Among thirty cases with blood pressure between 90 and 100, only seven were seriously ill.

Among eighty-eight cases with blood pressure below 105, the myocardial factor may have played a part in eleven cases. In only two was there any objective evidence of cardiac decompensation. One was the diabetic with lobar pneumonia above referred to and another a case of chronic adhesive pericarditis with congestive heart failure. The other

nine in whom the myocardial factor may have played a part were as follows: chronic myocarditis two cases; diabetes with myocarditis two cases; auricular extrasystoles one case; chorea with mitral regurgitation, no fever, one case; history of chorea one case; murmur cardiac non-organic one case, paroxysmal tachycardia (not examined during attack) one case.

Any discussion of the etiology of hypotension must take into consideration those physiologic factors which are responsible for normal blood pressure and indeed for increased blood pressure. These four factors are: 1—the driving force behind the blood column, that is the heart muscle and valve; 2—the arterial wall; 3—the peripheral resistance; and 4—the state of the blood itself, such as blood volume and viscosity.

We have just seen that in eighty-eight cases myocardial failure was present in but two and that only nine more had any sort of lesion in the heart. We may, therefore, say that with the broadest possible allowance for types of cardiac lesions the factor of force of cardiac contraction played a part in but 12.5 per cent of the hypotension cases.

As regards the second factor, the condition of the vessel walls, this probably plays very little part either in hypotension or in hypertension. It has been quite conclusively demonstrated that hypertension is dependent upon changes in the smaller arterioles rather than upon alterations in the structure of the larger arteries. Hypertension may occur with or without peripheral arteriosclerosis and is in a great measure independent thereof. Again, arteriosclerosis may occur without hypertension.

I find five cases of arteriosclerosis in my series of hypotension, only one of which had previously been a hypertension case. This man with blood pressure 64/45 was a decompensated cardiac while the other four had no obvious cardiac lesion, three being cases of chronic pulmonary infection and one pernicious anemia.

It is of interest that three of these four cases in whom the eye grounds were studied showed only slight changes in the terminal arterioles. One showed moderate arteriovenous compression and slight periarterial streaking. Another showed no arteriovenous compression, no periarterial streaking, a little variation

in the size of the vessels. The third showed moderate periarterial streaking and slight arteriovenous compression. None showed hemorrhage or exudate or arterial obliteration.

The third factor, that of alteration in the degree of peripheral resistance in the terminal arterioles and the capillary beds, is difficult to determine clinically, chiefly because we are dealing with a dilatation rather than a contraction. One case of neurocirculatory asthenia with tachycardia, palpitation, clammy sweating, and dependent cyanosis and easy flushing might well fall in this group. The urticaria and allergic cases might possibly be classed here but as yet we are too ignorant of the fundamental pathologic changes in this group of diseases.

The fourth factor, that of lessened blood viscosity, may have played a part in four cases, one of pernicious anemia, and three of secondary anemia.

A striking feature of the clinical findings in these cases is the occurrence of a wide diversity of pathologic conditions, conditions which are found as frequently in individuals with normal blood pressure or, indeed, with hypertension. Thus, there were three diabetics, six with active tuberculosis, five others with chronic pulmonary pathology, two pellagrins, thirteen with predominantly nervous or mental manifestations, and a wide scattering of other diagnoses such as epidemic encephalitis, cholecystitis, chronic appendicitis, hypothyroidism, colitis, ulcerative and mucous salpingitis, duodenal ulcer, prostatic hypertrophy, carcinoma of the oesophagus, and spastic paraplegia.

While there were seven cases with visceropotosis and five with asthenia without other apparent cause than the hypotension, these were balanced by five cases who felt perfectly well and showed no abnormality other than obesity. Obesity, which is usually a factor in the causation of hypertension, was present in seven hypotensives. Thirteen hypotensives showed some degree of inanition and emaciation but in all, with the possible exception of one, the general physical condition was the result of some other disease and the hypotension appeared to be but an accompaniment of the asthenic state resulting from the major disease. These diseases were bronze diabetes, acute ulcerative colitis, epidemic encephalitis,

bronchial asthma, active pulmonary tuberculosis (four cases), chronic enterocolitis, lung abscess, carcinoma of the oesophagus.

The allergies are represented by fourteen cases or, if we include epilepsy, fifteen.

There were two of urticaria, six of asthma, one of vasomotor rhinitis, four of eczema, one of cyclic vomiting and one epilepsy. Hypotension has been considered a characteristic finding in allergy. I have previously brought out that while in allergy the blood pressure may be below 110, it is more often within the normal range and indeed may be elevated. Twenty-three per cent of my entire series of allergics showed blood pressure below 110 as contrasted with 3.9 per cent of 3,000 consecutive physical examinations. We may say, therefore, that hypotension occurs more frequently in allergy than in the general run of internal diseases.

It is possible that endocrin upset has some influence on the third factor mentioned above, that of peripheral resistance. Certainly it has been shown that the secretion of the adrenal gland definitely influences the distribution of blood in the capillaries. In four cases the endocrin factor was predominant and probably was responsible for the hypotension. Two of these were hypothyroids, one polyglandular syndrome, and the third a case of acute adrenal insufficiency.

When we reach a study of the foci of infection, the figures at first glance appear rather startling. Of eighty-eight with blood pressure below 105, sixty-five showed focal infection at some location in the body. Seventy-four per cent carried focal infection. But for contrast we have the figures of the Life Extension Institute in which in 4,100 consecutive examinations irrespective of diagnosis 84 per cent showed pyorrhea by X-ray. In 10,000 routine X-ray examinations of the jaw this institute found root infection in 63 per cent of adults. They concluded that 85 per cent of adults examined at the head office of the institute showed some focal infection. Focal infection therefore does not appear to occur more often in hypotension than in the general run. Furthermore, as is well known, this lesion is equally frequent in hypertension.

The conclusion to be drawn from this study is that hypotension is not itself a disease. It is usually but an incidental finding in otherwise healthy or diseased individuals and is not

the basic underlying pathology and rarely requires treatment per se. The hypotensive may be either obese or thin and may suffer from nearly any of the diseases to which flesh is heir except hypertension. The percentage incidence of hypotension in my series of 3,000 persons sick enough to consult a physician is practically the same as it is in series of healthy adults.

The danger of hypotension is not being exaggerated by physicians quite as much as it was formerly but all of us still see far too many patients who come in full of apprehension because a physician has told them that they have low blood pressure and that this must be treated. With rare exceptions hypotension itself does not need treatment. The hypotensive without other organic pathology is more fortunate than is the so-called normal pressure individual. His life expectancy is greater. His sense of well being and his productiveness will be greater at middle age than will be the case with the others. I have two physicians, both six feet tall, healthy, robust, indefatigable workers with blood pressure below 100, who, in their activity and endurance, put the rest of us to shame. I have an equally active business man with a blood pressure of 110 who, whenever his pressure is taken, as in insurance examinations is told with a shake of the head that he has low blood pressure and should be under treatment. Each time I must persuade him that he needs no treatment, indeed that he should consider himself lucky.

The first two know better but the third, an equally useful member of society, might easily have been made a chronic neurasthenic invalid.

I have hitherto made no reference to essential hypotension, that rather indefinite problematic condition characterized by headache and vertigo, palpitation after moderate exertion, mental and physical fatigability, pains in the chest, abdomen or extremities, in patients who lack stamina, have cold clammy extremities, and complain of their inability to perform the daily routine. In these no outstanding organic abnormality is observed outside of the hypotension. There are nearly as many theories of the causation of this so-called essential hypotension as there are writers on the subject. These theories are, briefly, adrenal insufficiency (Lawrence), focal infec-

tion (Hoxie), respiratory deficit and decreased oxidation (Barach), constitutionally inferior state (Levison), elongation of the ascending aorta with narrowing of its arch (Fossier), splanchnic pooling of the blood (Mosenthal and Greaves), and capillary stasis due to chronic poisoning from absorption of histamine or a histamine like body (Freedlander).

Sixteen of the eighty-eight patients with blood pressure below 105 might be classed as essential hypotension provided we adopt some of the wider descriptions of this condition that are used by some of the writers. However, even in this group other pathologic conditions exist such as visceroptosis and focal infection and there is no uniformity in symptoms, physical findings, methods of treatment or response to treatment.

707 *Medical Arts Building.*

DISCUSSION.

DR. WALTER B. MARTIN, *Norfolk*: I am very happy to say that I find myself in complete agreement with the conclusions reached by the speaker. I think entirely too much stress has been laid upon the question of hypotension in itself. I am speaking now of so-called essential hypotension. This may be due to the fact that insurance companies have frequently rejected individuals with low blood pressure. That is probably due to their association of the condition with tuberculosis and the fear that in asthenic individuals with low blood pressure, they are dealing with pulmonary tuberculosis.

Speaking primarily of the so-called essential hypotension, my own experience is entirely in agreement with Dr. Vaughan's that these cases do not show consistently any pathology that is not shown in equal degree in people with normal pressure or in people with hypertension. The probability is that a great many people inherit a certain physical make-up that predisposes them to a hypotensive state. The greatest harm any one can suffer from hypotension is being told that their blood pressure is low and that they should be treated for it.

The lesson to be gained from this paper is that if we must tell these people something about their blood pressure we should tell them not that it is too low, but that it is not high and not give them the exact figure, or if they already know about it, tell them that their life expectancy is better. It may be that in early life they may be somewhat asthenic and not display as great an amount of energy as the rest of us, but in middle life and later life they will surpass us.

DR. VAUGHAN, closing the discussion: I am glad Dr. Martin brought up the subject of essential hypotension and did not give it any special category.

As Dr. Martin has said, it is an excellent diagnosis if you have to pin a label on the patient. If a patient comes in or is sent out and has to have a diagnosis, it will let you out. But it places the emphasis on exactly the wrong thing; it emphasizes what ought not to be emphasized.

AGRANULOCYTIC ANGINA.

Report of one Case Occurring in Man.*

By ROBERT C. WHITEHEAD, M. D., Norfolk, Va.

Agranulocytic angina is the name given by Schultz in 1922 to a group of six cases characterized by a gangrenous stomatitis and a blood picture showing marked reduction of the total white cell count with a low percentage of polymorphonuclear leucocytes. These were all females and of middle age.

Since this initial report others have appeared in the literature, especially of Germany and later in the United States and Canada. Lovett reported in 1924 the first case in America. Kastlin, of Toronto, in the *American Journal of the Medical Sciences* of June, 1927, gives a full description of the disease and an exhaustive investigation of the literature and reported two cases occurring in the Toronto General Hospital. He gave the total number of cases reported at the time of his writing as forty-three, thirty-four of whom were females and nine males. Rotter reported the first case occurring in males and Lauter the first case resulting in recovery.

The onset is sudden, with chills, fever and malaise. The throat, tonsils or the alveolar arch is infected and necrotic. The local lymph-nodes are enlarged. Jaundice usually develops with enlargement of the spleen and liver. Examination of the blood shows the red blood cells, hemoglobin and platelets normal with striking reduction of the white cells, which on differential count shows the polymorphonuclear leucocyte to be decreased and the percentage of lymphocytes relatively increased.

The bacterial studies have shown many organisms. Smears from the necrotic areas in many cases have shown the presence of the spirillum and fusiform bacillus of Vincent, staphylococcus, streptococcus hemolyticus, and others, but are negative for diphtheria. The petechial hemorrhages are generally absent but were reported as a late occurrence in one of Kastlin's cases. Bone marrow at autopsy is reported to be cell poor with almost total absence of granulocytes. The oral cavity is involved in all cases. The necrotic area involves the tonsils, throat, larynx or esophagus. A membrane forms in the majority of cases, which is described by Lovett as being non-marginate with over-hanging edges, or with

no surrounding inflammatory area. The course of the disease is generally fatal, usually terminating by pneumonia.

With this brief and incomplete description of the disease and without going into the question of differential diagnosis, I wish to report the following case:

Mt. T., white male, age forty-seven, occupation pilot, admitted to St. Vincent's Hospital through the emergency room, June 14, 1927, having fallen on the street. He gave the following history:

The PRESENT ILLNESS began about five weeks previously with soreness of the gums, at which time he consulted a dentist and was referred to a peridontist who gave a diagnosis of pyorrhea. In the course of treatment, several teeth were found necessary to be extracted. Smears made from his mouth revealed the presence of the spirillum and fusiform bacillus of Vincent. The diagnosis was changed to Vincent's angina. As part of the treatment of the latter, he received one dose intravenously of sulpharsphenamine. A Wassermann at this time was negative. The progress of the mouth condition was steadily bad with gradual spreading of the ulcerated area in spite of the treatment. During this period he lost seventeen pounds in weight. He was on his way to fill an engagement with the peridontist when he was attacked with dizziness and fell on the street.

PAST HISTORY revealed nothing bearing on the present condition. In 1913 he had some urinary trouble, variety not known, which necessitated a cystoscopic examination. He denied venereal infection and stated that prior to the present illness he had enjoyed exceptionally good health.

EXAMINATION. A fairly well nourished man, complaining of severe headache and pain in the left cheek and mouth. Temperature 104, pulse 110, respiration 26, blood pressure 150 over 80. The left cheek was slightly swollen with some induration over the superior maxilla near the alveolar process. The breath was exceptionally foul. Gums were inflamed, with pus around the remaining teeth. Extending from the upper excisor along the left side of the alveolar arch was a large membranous slough, dirty gray in color, covering the entire gum and involving the anterior pillar of the fauces. Laterally, this slough reached the hard palate and externally extended up to the buccal surface of the cheek. The tonsils were

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not involved. The facial sinuses were clear and transilluminated well. No other pathology was found. The thoracic and abdominal viscera, extremities, etc., were normal.

LABORATORY REPORT was as follows:

Urinalysis—Color straw, specific gravity 1,030, acid reaction, albumen, sugar 0. A few flat and round cells, many crystals of triple phosphates, no red blood corpuscles, pus nor casts. The above urinalysis continued to be reported from time to time through the course of the disease.

BLOOD PICTURE on admission was as follows:

R. B. C. 4,000,000, hemoglobin 70 per cent, W. B. C. 2,700, differential count, polys 10 per cent, lymphocytes 80 per cent, mononuclears 1 per cent, unclassified 9 per cent.

June 17th, the blood picture was as follows:

R. B. C. 4,000,000, hemoglobin 70 per cent, W. B. C. 2,600, polys 16 per cent, lymphocytes 72 per cent, large monos 8 per cent, unclassified 4 per cent.

June 22nd, blood count showed a great reduction in white cells, W. B. C. 1,700, polys 18 per cent, lymphocytes 72 per cent, large monos 6 per cent, transitionals 4 per cent.

June 26th, the blood picture, R. B. C. 3,600,000, no reticulate cells, hemoglobin 65 per cent, W. B. C. 1,100, polys 18 per cent, lymphocytes 72 per cent, large monos 7 per cent, transitional 3 per cent.

June 28th, R. B. C. 2,570,000, hemoglobin 46 per cent, W. B. C. 850, polys 22½ per cent, lymphocytes 59½ per cent, large monos 16.5 per cent, transitional .5, occasional normoblast, reticulated cells 1 per cent, blood platelets 165,000.

July 4th, R. B. C. 2,000,000, hemoglobin 60 per cent, W. B. C. 1,700, polys 18 per cent, lymphocytes 50 per cent, monos 32 per cent. Smears from the mouth showed spirillum and fusiform bacillus of Vincent. Wassermann was negative. Repeated blood cultures were negative. Progress of the case was steadily downward. After a few days of moderate suffering, the pain became less and rapidly disappeared, he became more stuporous and slept most of the time. When he was aroused he expressed himself as fairly comfortable and not suffering. His appetite was poor and he took little food on account of the condition of his mouth.

On *June 24th*, a large piece of slough was removed but promptly formed again. The temperature continued high, 102 to 103 through-

out the course of the disease. The pulse ranged around 120 and respiration never higher than 30. Toxemia continued intense with great drowsiness and occasional attacks of delirium.

On *July 1st*, slight jaundice of the sclera was observed for the first time. On the 3rd, the jaundice had become general and moderately deep in color. There was no hemorrhage in the skin or mucous membrane at any time. The condition continued unchanged except for increasing weakness and on July 8th he died. There was no evidence of lung involvement. The treatment throughout the course of the disease was symptomatic and supporting. No specific measure was attempted.

Autopsy was performed by Dr. Roche in ten hours and the following report was made: Body of elderly white man six feet and weighing approximately 160 pounds. Body deeply jaundiced, flaccid, no rigor mortis, slight bluish mottling of the chest wall. Incision from tip of sternum to pubes. Subcutaneous fat yellow, tissues dry, liver extended 4 cm. below the costal margin and has a peculiar nutmeg appearance, grayish in color. Gall-bladder filled with bile, left lobe extending to and covering the spleen. Spleen enlarged, capsule covered with adhesions, soft and wrinkled, three times normal size. Intestines are covered with fat and are collapsed. Both kidneys enlarged equally in size, external surface deeply congested, purplish in color. Sections of kidney show thickened capsule, atrophy of tubules, marked infiltration of leucocytes and blood in the glomeruli and tubules. Collection of blood here and there. Section of spleen shows thickened capsule and walls of capillaries, masses of lymphocytes and red blood corpuscles, endothelial and plasma cells; pigments scattered throughout the section. Smears from cut surface show red blood corpuscles and lymphocytes and a few myelocytes.

Section of liver shows dilated central vein and liver sinuses. Liver cell compressed and showed marked pigmentation. In some areas, cells are replaced by fat. Much pigment scattered throughout section.

Smears from bone marrow show only free fat. There are a few scattered lymphocytes and red blood corpuscles and a few normoblast.

Anatomical diagnosis, chronic passive congestion of the liver, spleen and kidneys.

The physical findings and symptoms together with autopsy report coincide so closely with the descriptions found in the literature

that a diagnosis of agranulocytic angina seems justified.

Medical Arts Building.

DISCUSSION.

DR. WALTER B. MARTIN, *Norfolk*: The principal point of interest in this case attaches to the question whether or not we are dealing with a clinical entity or whether the various writers have not grouped under one heading a number of different conditions that arise from various causes. I am one of those who believe that there is no such clinical entity as agranulocytic angina. We know that there are various conditions that will produce a picture very similar in character to the one just presented—arsenical poisoning, radium overdosage, aplastic anaemia, etc. Many of these cases are not reported fully enough to accurately make a diagnosis. Essentially, we have a failure of the blood-forming organs, a decrease in the agranulation cells due to more or less complete aplasia of the bone marrow. Those cases of agranulocytic angina coming to autopsy show aplasia of the bone marrow.

One of Kastlin's cases which Dr. Whitehead reports, if you will notice, is a typical case of arsenical poisoning. The patient received a dose of arsephenamin and a few days later developed an aplastic state. I have seen one case in which there was this clinical picture as a result of arsphenamine poisoning.

Overdosage of radium or X-ray will produce the same effect—rapid fall in the white cells. In cases that have dirty mouths it is not at all improbable that the predominating organism present will set up an acute infection. Infection that is present in any part of the body will flare up into activity, due to lowered resistance of the body. In Dr. Whitehead's case, which was observed for about thirty days, there was steady progressive anaemia, with two million red cells and a color index of 45 per cent., with almost complete absence of reticulated cells, depression of blood platelets and a decrease in the white cells.

ACUTE TRAUMATIC TUBERCULOUS ORCHITIS—REPORT OF A CASE.*

By NELSON MERCER, M. D., Richmond, Va.

Due to several points of clinical interest from which we may derive some benefit, this paper reporting a case of acute traumatic tuberculous orchitis is presented.

In the first place, this acute complication of quiescent pulmonary tuberculosis is less frequently found than the chronic variety of orchitis and epididymitis.

Secondly, involvement of the vas deferens, the seminal vesicles, the prostate, the bladder, and, finally, the opposite side of the genital tract, usually occurs if the disease is not checked in the early stage of development. Miliary tuberculosis may result from lack of prompt treatment of the above complications.

Thirdly, this case illustrates the fallacy of

telling a patient he has "no tuberculosis" just because he is not running a temperature, has negative sputum, and has no demonstrable rales or other active signs in his chest.

Whenever a patient has had any signs of active pulmonary tuberculosis, always warn him to avoid all forms of violent exercise to prevent a possible reactivation in his lungs or some other organs of the body.

REPORT OF CASE

The patient was a Captain, U. S. Army, age thirty-one, married.

Family History.—Father and mother and older relatives negative for tuberculosis. Patient's daughter, age six years, had been treated for tuberculosis of the hip for two years previous, and was still wearing a brace on leg. His second child was three years old and healthy. His infant son was apparently normal. His wife was healthy, and her family history was negative for tuberculosis.

Past History.—Had always been a healthy child and man prior to this attack. During the patient's tour of duty with the Army in France in 1918-1919, he was much exposed to all kinds of bad weather and fatigue, but never reported sick while over-seas. Upon his return to the United States in 1919, he was assigned to duty with his family at Fort Monroe, Virginia, and they were given a house which had recently been vacated by a family, one of whom had a "bad cough and looked thin and sick". This house was fumigated but not scrubbed when the family moved into it, and here they lived for about two years. It was here that the girl developed tuberculosis of the hip joint. The patient was then assigned to duty in Richmond, and enjoyed good health until he had a "spell of flu" in February, 1923. He was treated by his family doctor, but a persistent cough for over three weeks continued to cause him anxiety, and he consulted me for a chest examination in March, 1923. He also complained of fatigue on slight exertion, pains under shoulder blades, slight loss of weight and appetite, and small amount of thick mucus coughed up in the early morning. Temperature at 4 P. M. was 99 to 99.4. He had expectorated no blood, and had no night-sweats. Sputum and urine were negative.

Physical examination in March, 1923, showed persistent moist rales in left apex and left interscapular region, which continued until pa-

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia in Petersburg, October 18-20, 1927.

tient was sent to Walter Reed General Hospital for observation in April, 1923. He remained there six weeks, was discharged, and told that he had "no tuberculosis".

Report of X-ray examination made in Richmond in March, 1923, was as follows: "Moderately well-advanced disseminated tuberculosis involving both upper lobes. There is a bronchial type tuberculous infection involving the remainder of the lungs; some of this has calcified, but there are numerous uncalcified tubercles still visible on both sides. (Signed) J. L. Tabb, M. D., Roentgenologist."

Present Illness.—The patient returned to duty in Richmond in May, 1923, and remained free of all active chest signs and symptoms. The following August while in swimming at Fort Monroe, he fell flat on his stomach while diving into the water and immediately developed severe pain in the right testicle and epididymis, which became swollen and acutely inflamed.

Morphine was necessary to allay the pain which persisted for several days, becoming worse as the testicle and epididymis became more acutely swollen. There were distinct nodules along the vas deferens, and the clinical picture was typical of tuberculous epididymitis and orchitis. Previous to the injury there had been no evidence of either condition.

Dr. E. T. Trice, of Richmond, on duty with same regiment, also examined the patient, and we agreed that it was acute tuberculous epididymitis and orchitis caused by the trauma. The patient was advised to have the right testicle, epididymis, and vas removed by operation at once to prevent spread to other organs and the opposite side of the genital tract, which he readily consented to undergo. Ten days after the injury, Dr. Trice resected the diseased vas as far up as possible, and removed the right testicle and epididymis at a hospital in Richmond.

A smear showed numerous tubercle bacilli in the testicle, epididymis, and vas.

Subsequent History.—The patient made an uneventful recovery after the operation, and, following a leave, returned to duty in Richmond. He has been doing full duty in the Army since that time, and for the past two years has been on duty in the Philippine Islands where he and his family are enjoying life generally. There has been no return of the chest or other pathology, and no ill effects have

been noted by the removal of the diseased organs.

SUMMARY

1. Prompt and radical removal of the traumatized organs prevented spread to other organs, and probably miliary tuberculosis.
 2. Acute traumatic tuberculous orchitis can occur in a case of quiescent pulmonary tuberculosis, even though no signs of active lung disease have existed for several months.
 3. Never tell a patient that he has "no tuberculosis" if there have ever been any signs of active pulmonary tuberculosis demonstrated.
- 1100 West Franklin Street.

DISCUSSION

DR. DEAN B. COLE, *Richmond*: I want to congratulate Dr. Mercer on his prompt diagnosis and his treatment. As most of us know, tuberculous orchitis is rare. In genital tuberculosis eight out of ten of all cases are in the epididymis, and it is only necessary to remove the epididymis in these cases. In tuberculous orchitis Dr. Mercer mentioned that you are likely to get a spread to other organs. This is due to the vascularity of the organ and the fact that it ruptures very easily. It may rupture into a vessel and thus give rise to disseminated tuberculosis or tuberculosis of the entire genito-urinary tract. I have never seen such an acute case, but it appears that prompt and radical removal is the only rational method of treatment. In the chronic cases, they can be treated with rest, diet, Alpine lamp, sun lamp, etc., but it is a long-drawn-out procedure and the results are doubtful. If it is of the epididymis only, prompt removal is always indicated.

DR. LAWRENCE T. PRICE, *Richmond*: This paper is extremely interesting, and I rise to call attention to two points. Tuberculosis of the epididymis and testicle is often secondary to tuberculosis elsewhere, and I feel that sometimes a surgical operation is performed and the patient is dismissed with no further examination. I feel that the condition is so often secondary that in every case the patient should be exhaustively examined by an internal medicine man (that is, of the chest), and by a urologist to exclude infection of the upper urinary tract. This was forcibly impressed on me some six or seven years ago and again two years ago. A man presented himself with a history of cystitis, of tuberculous cystitis. At the same time he gave a history of having a right castration for tuberculous epididymitis. Two years after that he had a second castration. Then he came to me with tubercular infected urine. Cystoscopic examination revealed infection of both kidneys, the tubercle bacilli being demonstrated by the microscope and by culture in guinea pigs. However, he was put on medical treatment, has been at work every day in an office, has gained weight, and is practically well.

Another case developed after injury in a baseball game. Epididymitis and orchitis subsequently developed into a hydrocele, which was tapped. At that time he was examined physically and found to have a well developed lung tuberculosis. I want to stress the point of not stopping at the local diagnosis and operation and then dismissing the patient. The patient should be studied from a diagnostic and medical standpoint and given medical treatment, anyhow.

DR. MERCER, closing the discussion: I thank Dr.

Cole and Dr. Price. I am very glad Dr. Price brought out the point he did. Of course, this patient had been given routine tuberculosis treatment before the injury occurred, and had become a quiescent case.

After the operation, he rested for two months and then resumed his duties.

THE OPERATIVE TREATMENT OF PULMONARY TUBERCULOSIS.

By F. S. JOHNS, M. D., Richmond, Va.

In the special branches of surgery an article is interesting only so long as the subject for its discussion has not become standardized. Surgery of the chest has opened up a new and interesting field for those who have given to it serious thought. Many of its problems have been solved, while a yet greater number are still in the state of development and experiment.

The operative treatment for pulmonary tuberculosis began its usefulness in 1907. Since that date a number of surgeons throughout the country have equipped themselves to do pulmonary surgery. Usually a new surgical procedure becomes popular in a few years, but the operative treatment for this large class of invalids has received comparatively little consideration. This is due probably to the serious problem of selection of cases suitable for the operation and to the poverty stricken condition of the great majority of these cases.

The operation for pulmonary tuberculosis has been standardized. This is the Wilms-Sauerbruch operation, which consists of resection of various lengths of the ribs from the eleventh to first, inclusive. This resection is done through a posterior incision and includes the angles of the ribs. With few exceptions, I have followed this method in fifty-nine operations for pulmonary tuberculosis.

My cases upon whom I did the Wilms-Sauerbruch operation showed results far beyond my expectations. The serious condition of these tuberculous patients usually necessitated the operation being completed in more than one stage. The operation is usually begun with the lower ribs, tenth or eleventh, but I encountered certain conditions which necessitated my doing the upper ribs first. Later, when the patient's condition had improved sufficiently, I anticipated completing the operation by resection of the lower ribs. My excuse for appearing before you is to discuss the exception

to this general rule. In a limited number of cases I have collapsed only the upper part of the chest with good results.

I should here state definitely that every case which had the upper ribs done first had advanced pathology in the upper lobe. In other words, the operation was directed at the most strategic point first, with the hope of attacking the less seriously involved areas later.

Surgeons have failed to emphasize this sort of a campaign, due probably to theoretical rather than practical reasons, since I am unable to find any clinical evidence that upper thoracoplasty alone has been followed by ill results. The argument advanced that upper thoracoplasty alone would produce further involution of the remaining lung has not been substantiated in my experience. Not a single case has shown any unfavorable sign or symptom in the lower lobes following the operation which could in any way be attributed to results of the operation. Some of these cases had a pneumothorax of the lower part of the lung which, of course, proved useful with a collapse of the adherent and more extensively involved upper area.

A few of my cases were poor risks with serious involvement of the apex. I had definitely planned to complete the standard operation in several stages. Some of these patients showed such improvement that they thought themselves well and did not desire further operation. A limited number of my series have had pathology confined to the apex. In this type of case I consider resection of the upper four or five ribs an ideal operation. The indications for this rather limited thoracoplasty on the upper lobe are: (1) those cases suitable for pneumothorax, but unable to get a complete collapse due to adhesions about the apex; (2) certain cases with a satisfactory pneumothorax of the lower lobe or lobes, with a faulty collapse about the apex; (3) cases which seem to have only apical pathology; lastly, (4) cases with advanced involvement in the apex, who are too sick to undergo the complete operation.

Those of you who have done the upper thoracoplasty, especially the first and second ribs, will agree with me that it is formidable surgery. A satisfactory exposure of the first rib is very difficult, especially in large muscular male patients. The danger of injuring the first intercostal artery when you cut the first rib close to the transverse process of the vertebrae should always be kept in mind. If more than

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October, 18-20, 1927.

one inch of the first rib is removed, care should be exercised lest you damage the subclavian artery. To eliminate pain following the operation, the ribs should be cut close to the tip of the transverse process. I think this is especially important in the upper ribs. Long posterior stumps give aggravating post-operative pain and slows the recovery.

The chief causes of death following the Wilms-Sauerbruch operation are: tuberculous pneumonia, wound infection and heart failure. The most serious of these post-operative complications is pneumonia. Not only does this troublesome condition involve the bad lung, but too often the dependable good lung is affected. Practically all thoracic surgeons agree that operations on the upper part of the chest are not often followed by pneumonia. It is a well-known fact that pneumonia is due to stasis which follows crippling of the function of expectoration by resection of the lower ribs. Brunner and Stoeklin report sixteen fatal cases of pneumonia in their series of 195 operative cases. Twelve deaths occurred after operation on the lower ribs; three deaths followed doing both lower and upper ribs at one sitting, and only one death occurred after upper thoracoplasty. This patient had had the lower part of chest collapsed a few weeks previously. It is a clinical experience with every abdominal surgeon that pneumonia is to be dreaded after upper abdominal surgery. I have been interested in the amount of collapse following resection of the first five ribs. Berard has said that the "first rib is the key to the thoracic dome." Some of these cases show almost a total collapse of the lung, while all of them have shown a very adequate compression. If we can get enough compression of the involved area with a limited amount of surgery, you have improved the operative risk and reduced the serious post-operative complications. I do not want to create the impression that upper thoracoplasty is suitable for a great number of cases of pulmonary tuberculosis, but my experience has convinced me that it has a place in the operative treatment.

DISCUSSION

DR. DEAN B. COLE, *Richmond*: Thoracoplasty is intended primarily to supplement and not to supplant pneumothorax. In pneumothorax complete collapse is usually neither necessary nor indicated. There is an optimum collapse—that is, the amount of collapse which is indicated for the maximum improvement of not only the collapsed lung, but also the opposite lung, for as you know, many patients who come to pneumothorax have a large amount of trouble in one lung and a moderate amount in

the other lung. If there is an optimum collapse in pneumothorax, there is also in thoracoplasty. We used to think that the thing to do in pneumothorax was to put the lung down, squeeze out everything squeezable, and keep it absolutely at rest. Experience has taught us that this is not necessary nor always indicated, and what we are trying to do in every pneumothorax case is to find the optimum collapse and keep that patient as near this collapse as possible. The same thing applies to chest surgery; no two cases require exactly the same treatment. They must be handled individually. This patient (showing slide), Dr. Johns told you had had tuberculosis for a long time and was more or less of an invalid, but was one of those cases diagnosed as chronic bronchitis, confined very closely to the house, could not go out, could not get her feet wet, could not be in a draft, nor could she do many of those things necessary for the recovery of a tuberculosis patient. Fortunately, she became ill, developed a temperature of 105, and was put in the hospital. Collapse of the lung being impossible by pneumothorax, Dr. Johns operated and closed this cavity. That was some eighteen months ago. Clinically, she still has come rales, but the X-ray shows most of her tuberculosis healed. Just closing this cavity and getting rid of the caseous tuberculous mass shown here was enough to put this patient on her feet.

(Next slide.) In this patient there was a very similar sort of thing, except there was not the involvement of the other lung. You can see the tuberculous deposit here below the area of collapse. This healed as soon as the cavity was closed. When the cavity was collapsed, the patient was able to handle the rest of her tuberculosis.

(Next slide.) Here is a patient who had been in a sanatorium for five years, had hemorrhaged, had gone back and forth, had ridden the waves, thought he was going to get well, and thought he was going to die. He had a great big cavity, the size of an orange. The thing I feared was that he would hemorrhage again and possibly die before this cavity could be closed. The cavity was closed, and he is doing very nicely now.

DR. W. E. BROWN, *Blue Ridge Sanatorium, Charlottesville*: There is very little that I can add to Dr. Johns' interesting paper and Dr. Cole's discussion. I have watched the development of thoracic surgery with a great deal of interest. We have known for a number of years that we could get more positive results with artificial pneumothorax in suitable cases than through any other treatment. However, it has been found that numbers of cases cannot be successfully collapsed by artificial pneumothorax due to dense adhesions. The success of operators in producing collapse of the lung by pneumothorax varies from one-third to two-thirds of the patients who are tried. In our work at the state sanatoria, we have had several hundred cases of artificial collapse. In some instances we have gotten excellent results from partial collapse. This has been due to the fact that the air will collapse that portion of the diseased lung in which the most toxic absorption has taken place; and a comparatively small amount of artificial pneumothorax under these conditions would make the patient symptom free in a comparatively short time. In other cases, attempts at pneumothorax would produce a collapsed lower two-thirds, when the greatest amount of pathology would be in the upper third of the lung; and in these cases we frequently get no material benefit. It is in this particular type that a partial thoracoplasty appears to be indicated.

I am glad to see that Dr. Johns is getting such good results with the partial operation. It seems perfectly logical, and it follows in the same category with the same results we sometimes get from partial pneumothorax. I see no necessity for a complete thoracoplasty in this type of patient. Why should a patient be mutilated unnecessarily if the resection of four or five ribs would collapse the diseased portion of the lung from which the symptoms originate? If we can get our patients symptom free, what more can we ask? Time alone is going to tell what the results of this operation are going to be, but I think it is perfectly justifiable in those cases which all other means of treatment have failed to benefit.

DR. J. SHELTON HORSLEY, *Richmond*: I am wondering, in view of the excellent results of Dr. Johns' work and the improved results of resection of ribs in infants under two with empyema, as reported by Dr. W. C. Davison, whether there may not be in this some local nutritional effect, whether it may not be possible that the more extensive procedure causes a greater amount of hyperemia, which, as we know, is a good thing for the tuberculous lung, and whether that is the reason why we get a more satisfactory result from the open rib resection than from the puncture.

DIABETIC CELLULITIS OF THE FACE: REPORT OF A CASE.*

By WILBUR M. BOWMAN, M. D., Petersburg, Va.

I feel greatly indebted for the privilege to report this single case of Diabetic Cellulitis of the Face before this Society. So far, I have been unable to find in the available records just such a case. A number of cases of carbuncles of the neck, however, are on record; also a huge diabetic carbuncle of the upper eyelid has been reported. Perhaps of interest and value is a case of "Diabetes Mellitus with Multiple Abscesses" which was reported in the *West Virginia State Medical Journal*, 1919-20, but to date the editor has been unable to locate the article. I would like very much to know the location of those lesions. In the case now reported there were eleven abscesses scattered about the cellular tissue of the forehead, eyelids, nose, and cheeks, but, unlike the usual cases reported, they were not carbuncles. They lacked that moth-eaten appearance so characteristic of a carbuncle. I wish it were so that this body could have seen the patient as words are inadequate to describe vividly or with justice the horrible, existing condition which perception alone could indelibly impress upon the mind. This patient was seen, however, at the hospital by the eye, ear, nose and throat physicians and other members of our staff.

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia in Petersburg, October 18-20, 1928.

CASE REPORT

XYZ, a white male patient, sixty-seven years of age, was referred and admitted to the hospital on June 19, 1927, with a diagnosis of Diabetic Cellulitis of the Face. Father died at the age of sixty-eight with Bright's disease. Mother died at the age of eighty-eight from "senility". One sister died of "kidney disease". Several brothers and sisters are alive and well.

PAST HISTORY. In 1918 the patient had an attack of influenza. During a period of April and May this year he had a very difficult time healing an infected lesion of his foot. He is a man of general good habits. I might state, however, that he has always been an excessive eater, especially of sweets. Constipation has been a noticeable factor practically all his life. His normal weight for years has been from 225 to 245 pounds but for a few months prior to present illness there has been a definite weight loss. This has been accompanied by a tired feeling and moderate polyuria.

PRESENT ILLNESS. On June 1st a small, painful pimple on the left side of his nose was scratched and picked. Shortly afterwards there was evidence of an acute inflammatory condition around the area accompanied by swelling. By the fifth day this had extended upward and involved the tissues around the right eye. This was diagnosed as erysipelas by the attending physician. As the swelling progressed to the left eye, the right one improved only to be involved again later. The tissues of the forehead and upper part of the nose became swollen. This was followed by a marked discoloration with gangrene threatening. About the twelfth day a purulent discharge started from both nostrils. Strikingly peculiar is the fact that there was only moderate pain, the patient's main complaint being a discomfort caused by the tenseness of the swelling and discharge. It was obvious that he was not improving so a specimen of urine was examined and this revealed sugar.

PHYSICAL EXAMINATION revealed a white man about sixty-seven years of age, six feet two inches in height, and weighing approximately 180 pounds. On admission the temperature was 101 1/5, pulse 105, and respiration 20.

There was a marked cellulitis of the greater portion of the face extending chiefly about the forehead, nose, eyes, and both maxillary areas.

In all there were eleven abscesses present. Five small ones varying in size from a dime to a fifty-cent piece were located on the forehead. One completely filled the upper left eyelid. The lower lid being edematous, completely closed this eye. A similar but reversed condition existed in the right eye. A large abscess present over the dorsum nasi and the lateral sides obscured all anatomical landmarks of the nose except the nasal apertures and even pus was draining from these in a continuous stream. The abscess present in the right cheek was about the size of a lemon. In the opposite cheek was the largest one of all being at least the size of an orange but not draining. In the same cheek proximal to the nose was a smaller one about the size of a walnut draining at an opening near the internal canthus of the left eye. This opening was connected with one at the internal canthus of the right eye by a sinus tract extending across the bridge of the nose. Into this tract also pus was draining from the abscess in the right eyelid, from one in the forehead, and from the nose. Application of slight pressure was all that was required to increase the discharge of thick pus from these openings. A dark blue discoloration predominated practically over the entire surface of these abscesses with a dark red around the margins. Once seen it was a "face you could not forget and words can not describe".

Blood pressure 155 systolic and 80 diastolic. Lungs were negative. Examination of the heart revealed a slight, soft, mitral blow at the apex occurring with the first heart sound but not transmitted. A slight, soft aortic blow occurred with the first sound but was not transmitted. I was unable to detect the cardiac extent on account of overlapping lung tissue. Abdomen was negative. Teeth were absent. A small pustule was present at the bend of the elbow.

The laboratory report was as follows:

TREATMENT AND PROGRESS. To control the glycosuria as soon as possible before undertaking any surgical intervention was the aim in this case. Ten units of insulin were given soon after admission. Twenty-four hour urine specimens were started. Continuous local applications to the face of hot magnesium sulphate (one-half saturated solution) compresses were begun. This was aided by the heat from a 260 watt therapeutic lamp. Irrigating each nostril with warm normal saline every four hours seemed to give the patient his greatest relief by allowing him to breathe easier. A 2 per cent mercurochrome solution was instilled in the sinus tract at intervals. A warm soda enema (high colonic) was ordered daily. The patient was kept on a light diet and ten units of insulin three times a day until his basal metabolic diet could be determined. Under this regime he began to improve at once. On the 23rd of June there was only .45 per cent sugar or 7.48 grams present in the twenty-four hour specimen. At this time he was put on a basal diet consisting of

F 155 grams

P 54.5 grams

C 55 grams

giving a keto-anti-ketogenic ratio of 1.6+. Insulin was increased to 45 units daily. On the following day he was sugar free with a blood sugar of 190 mgs. per 100 c.c. blood. About this time the right eye had opened showing the eyeball in perfect condition. The left eyelid, however, had swollen to such an extent that the lids could not be retracted enough to allow a slight view of the orbit. Pus continued to drain freely from the openings previously described. The temperature varied from 99 2/5 to 101 2/5. At the appearance of several pustules about the forehead he was given 20 c.c. of a 1 per cent mercurochrome solution intravenously in the afternoon. The temperature shortly rose to 105

June 19, 1927.

	Sp. Gr.	React.	Album.	Sugar	Ac. and Diac.	Casts	W. B. C.	R. B. C.
URINE	1.018	Acid	trace	pos.	neg.	few hyal.	rare	neg.
Quantitative Sugar 1.27 per cent								

June 20, 1927

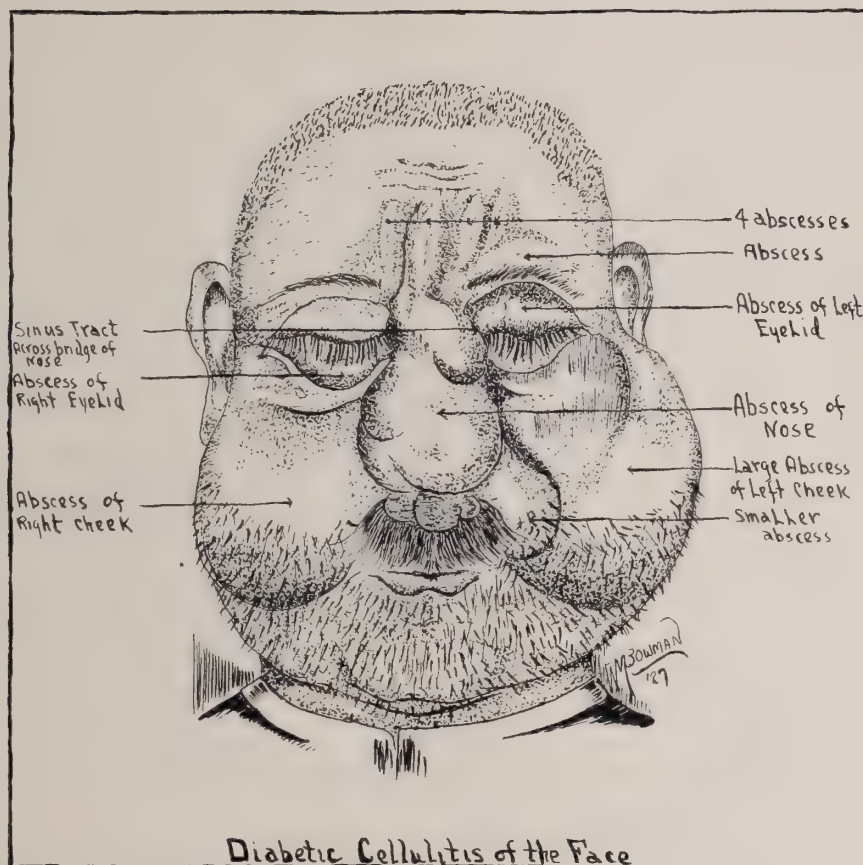
	Reds	Leucocytes	Hemogl.	P. M. N.	Lympho.
BLOOD	4,280,000	21,800	79%	89%	11%

Wassermann reported at a later date as negative.

but by morning had fallen to 97. The pustules had disappeared and the abscess in the left eyelid broke and allowed a view of the undamaged eyeball for the first time since closure of the lids. The temperature remained below the 100 mark for five days, after which time it began to vary between 99 and 101. On the basal diet he began to run about .3 per cent urinary sugar so the insulin was gradually increased to 66 units daily, rendering him sugar free and giving a blood sugar of 142 mgs. per 100 c.c. blood on July 4th. Only oc-

its place. The left eye continued to open. The purulent nasal discharge had stopped. On July the 17th, just eleven days after opening the abscesses, the patient was allowed to leave the Hospital accompanied by a nurse who was to instruct some one in the family how to administer the insulin. On the day of discharge the urine continued sugar and acetone free while the blood sugar was 134 mgs. per 100 c.c. blood. Leucocytes were 11,200.

The patient has been seen several times since his discharge. All of the incisions have healed



Diabetic Cellulitis of the Face

asionally was there a slight trace of acetone noted. I might state that an X-ray taken on the 27th of June did not show any bone destruction nor was a definite statement made as to the presence of pus or granulations in the sinuses. Feeling assured that the patient was now under control, the non-draining abscesses were incised under local anaesthesia on July 6th. The heat from the therapeutic lamp was kept applied to the face continuously. From this time on the patient made a very rapid recovery. The bluish discoloration began to disappear and a natural pink color took

nicely and appear only as ordinary wrinkles. He is up and about, gaining in weight, and feeling fine. While increasing his caloric requirement there has been a gradual reduction in insulin. On September the 8th, the blood sugar was 86 mgs. per 100 c.c. blood. On October the 5th, the daily insulin dose was only 7 units while the blood sugar was 112 mgs. per 100 c.c. blood. On October the 10th, the insulin was discontinued altogether. Not once has he shown sugar since being discharged. His diet, which consists of 2,500 calories at present, is being strictly adhered to.

COMMENT: There are a number of interesting features about this case but I shall only stress those that seem to be outstanding. Those complications that could have happened very easily but did not, might be noted. How easy it was for diabetic gangrene to have taken place. How about a septicemia when in all probability a bacteriemia already existed. The eye, ear, nose and throat physicians who saw this case immediately remarked as to a complicating sinus thrombosis since this has occurred from so simple a lesion as a pimple on the nose. In fact, I was informed by one of the specialists a few days ago that such a thing happened recently in a case which made a lethal exodus. Even a sinusitis, local hemorrhage, embolism, etc., were in order.

Interesting of course is the lack of pain. This patient complained more of the nasal discharge, heat from the therapeutic lamp, or the prick of the hypodermic needle than he did from anything else.

This case illustrates very strongly the fact that in cases of diabetes with infection the amount of insulin required daily is greater than under ordinary circumstances on account of a lower sugar tolerance. Apparently, this patient had an exceedingly low tolerance as indicated by a daily insulin dose of 66 units to keep him sugar free on a diet containing a total carbohydrate intake of 102 grams. It is noteworthy however that as the infection subsided the tolerance increased.

It is perhaps needless to stress the fact that conservative surgery of the face should be the procedure of choice, especially in such cases.

121 North Union Street.

DISCUSSION.

DR. GEORGE H. REESE, *Petersburg*: There is very little that I feel like saying in regard to this case after the complete description given by Dr. Bowman. Also, for the reasons given by him; there is practically nothing in the literature bearing on just such a condition as this. We are all at least theoretically familiar with furunculosis and gangrene accompanying diabetes; we all know that any diabetic is susceptible to infection; but I am quite certain there are few men who have seen just such an angry-looking infection as this one Dr. Bowman has described. When he called me in consultation with this case and told me he expected me to operate on it, I was considerably set back, because I thought he had wished something on me. It was about as discouraging looking a proposition as a man could well face, and as I had had some observations of the effect of boils and carbuncles on the upper lip appearances were not reassuring. I saw two men die within a period of two or three months from the effects of what looked like small boils on the upper lip. As this

thing extended over the whole upper part of the face it was clearly apparent that the man was in great jeopardy. I was rather surprised that the man was not already dead, and I was more surprised to find that up to the time I saw him he had really no bad symptoms; but just what you might call "bad looks."

My part in the performance was incising these areas and slipping little rubber tubes in to permit drainage. It was a case that I greatly appreciated seeing and a case that Dr. Bowman very wisely got in shape for surgical procedure at the proper time. For that I think he is greatly to be commended. It is a very instructive case and a case that bears out the value always of thorough preparation for any work you are going to do, especially in infective surgery, where you are so likely to set up a septicemia by ill-considered and excessive measures.

DR. BOWMAN, closing the discussion: I have nothing further to say, but want to thank Dr. Reese for his very helpful and free remarks. I appreciate them.

THE MINERAL WATER RESOURCES OF THE STATE OF VIRGINIA AND THEIR THERAPEUTIC PROPERTIES.*

By WILLIAM EDWARD FITCH, M. D., Buffalo Lithia Springs, Va.

Long before the coming of the white man to this continent, mineral springs were empirically known and employed by the native Indians, and with good results, in the relief of many diseased conditions. It may be interesting to note that practically all the spring areas in use today as spas and resorts were first pointed out by the red man to his white brother as "medicine springs."

The development of quantitative chemical analysis opened the way for a definite understanding of the nature and quantity of mineral salts contained in waters. In the early days chemical analysis was not well developed, and precise methods had not been perfected; therefore, it was difficult to demonstrate with certainty the presence of minute quantities of elements.

Late researches in medical hydrology have brought out and established the fact that the active substance of a curative water is present in extremely small amounts and that often only infinitesimal quantities of an element suffice to bring about profound biological changes in both man and animals. The progressive physician who would keep pace with the advancement of modern science must realize that quantities of mineral elements so infinitesimal as to be unweighable and often only spectroscopically detectable are sometimes capable of producing profound biological

*Read at the fifty-eighth annual meeting of the Medical Society of Virginia, in Petersburg, October 18-20, 1927.

effects, and therefore possess significant therapeutic properties.

The history of mineral waters and mineral springs in general, however, dates back and beyond the beginning of Christian Era. The Egyptians, Arabians, Mohammedans, Greeks, Romans, and, in fact, all nations of the earth have used mineral waters for medicinal purposes from time immemorial. These centuries of experience have demonstrated that in certain chronic diseases, the intelligent use of mineral waters surpasses the curative action of drugs from the corner pharmacy. While European physicians have always appreciated the curative virtues of mineral waters, American physicians have, through apathy or neglect, overlooked the fact that we have in our own country the counterpart of the best European springs. It is a historical fact that mineral waters have been of great benefit to mankind. For the first five hundred years following the Christian Era, mineral waters were the only medicinal agents used by the Roman physicians, and their "Aqua Calientes" have been in constant use for drinking and bathing cures for more than two thousand years. Josephus refers to the thermal baths at Caliorrhoea, near the Dead Sea, made famous by Herod the Great, who resorted there for the use of the baths during his illness. The thermal baths at Bath, England, have a history extending back to the time of Christ, while legend and mythology carry the record back to 800 B. C. Parts of the architectural structures built here by the Romans, between 43 and 84 A. D., are still standing—though they have been in constant use for nearly 2,000 years. The spring at Ala-Sherhr, the Philadelphia of the New Testament, has been in constant use since the Third Century, B. C., and the waters of these springs are still bottled and sold all over Asia Minor.

The European spas and watering places take an annual toll of at least \$100,000,000 from American citizens seeking health and recuperation at European resorts. Some of them go to foreign watering places under the delusion that foreign things are better than those at home, and that the more inaccessible and expensive a thing or place is, the better it must be; others go because the prescribing physician is not creditably informed that in our own country we possess every kind and class of mineral waters which have made the European spas so popular and wealthy. It is a

serious reproach on the medical profession of our country that so many thousands, even millions of patients have spent small fortunes hunting health and happiness at European spas when they could have had the same scientific care and more considerate attention at home for a fraction of the cost, and the additional advantage that our American spas and mineral waters are not only equal to any in the world, but in many respects far superior.

Many of the greater American spas in the United States have been and are expending vast sums of money in the construction and equipment of resorts which in many particulars excel any similar establishments in foreign countries. They have for their medical directors eminent physicians who have mastered the science of hydriatics, so that it is no longer necessary for American physicians to subject their patients to long and hazardous sea voyages to secure treatment at a foreign mineral spring or spa.

There are scores of resorts throughout the country offering every comfort for the invalid, while the larger spas offer all the comforts of the home, all the advantages of the best sanitarium, all the service of the best hotels, with every comfort, convenience and luxury to be had at any spa in the world. Europeans secure relief at their home spas, and we should at ours. Change of scene and travel are just as beneficial and invigorating here as in Europe and this great country of ours, stretching from Canada to Mexico, and from the Atlantic to the Pacific Oceans contains scenic effects as interesting as any in Europe.

There is imported into the United States annually something like 4,000,000 gallons of foreign mineral waters, representing in value more than \$1,000,000; but our domestic consumption of mineral waters far surpasses this, reaching some 70,000,000 gallons a year and aggregating in cost about \$25,000,000. The magnitude and great practical importance of this aspect of therapeutics—the use of mineral waters medicinally—ought to awaken the minds of the American medical profession to the great potential possibilities for scientific mineral water therapy—through these God given natural medicinal agents, charged with potent therapeutic properties.

VIRGINIA MINERAL SPRINGS

The State of Virginia has 100 spring localities, with a total of 320 individual mineral

springs, eighty of which have been analyzed, and sixty at various times used as resorts. The State has long been renowned for the number, variety and value of its mineral springs, and even at the present time it stands well toward the head of the list in this respect, only California having a greater number of mineral springs. All classes and varieties of mineral waters are found in this State, the alkaline waters predominating, followed by the chalybeate, sulphureted, alkaline, alkaline-saline, acid, and thermic.

Alkaline Waters.—There are twenty-five alkaline springs in the State, viz., Bear Lithia, Buckhead, Buffalo Lithia Nos. 1, 2, 6 and 8; Farmville Lithia, Golindo Lithia, Hot Springs—Boiler Bath, Hot Spout Bath, Octagon Bath, New Hot, Sulphur Bath, and Magnesian Spring; Jeffress Lithia, Massanetta, Nye Lithia, Osceola, Otterburn Lithia, Powhatan, Rubino, Seawright, Stribbling, Virginia Etna, Healing, and Wyrick Springs.

Alkaline Saline Waters.—There are three localities where this class of waters are found, viz., Buffalo Lithia Nos. 4 and 5 Springs, Burnett's Mineral Spring, and Carter's Springs. Like her sister State, North Carolina, Virginia has no muriated alkaline saline springs.

Saline Waters.—There are three spring localities where saline waters are found, viz., Alleghany Springs, Berry Hill Springs and Healing Springs. All of these springs are of the sulphated saline type or class. The two first named are the highest in total solids of any springs within the State.

Ferruginous Waters.—There are three localities in the State where chalybeate, ferruginous or iron waters are found, viz., Buffalo Lithia No. 3 Spring, Dagger's Chalybeate, and Rock Enon Springs. All of these contain the bicarbonate of iron. Buffalo Lithia No. 3 Spring carries 65 milligrams of iron bicarbonate to the liter. Rock Enon carries 243 milligrams of the iron bicarbonate to the liter, and Dagger's chalybeate springs contains 55 milligrams of iron bicarbonate to the liter.

Sulphureted Waters.—There are three spring localities in the State where sulphur waters are found, viz., Cold Sulphur Springs, Dagger's Sulphur Springs, and the Virginia Hot Springs, with one spring sulphureted—the Sulphur Bath Spring. All of the Virginia Hot Springs contain large volumes of carbonic acid, and, in addition, they are highly radio-activated, all of which adds to their

therapeutic potency and medicinal usefulness.

Thermal Springs.—There is only one area in the State of Virginia where hot waters are found, and that is the celebrated Virginia Hot Springs. All six of the springs are hot, with temperatures ranging from 35.5 to 41.5 Centigrade. The waters are also highly charged with carbonic acid gas, and the Sulphur Bath Spring with sulphureted hydrogen; in addition, they are highly radio-active.

Arseniated Waters.—Virginia, like her sister State, North Carolina, has one spring which contains traces of arsenic. The Crocket Arsenic Lithia Spring carries almost one-third of a milligram of disodium arsenate to the liter of water and is the only spring in the State which contains this element.

Acid Waters.—There are five localities in the State in which acid waters are found, viz., Bath Alum Springs contains free H_2SO_4 , Bedford Iron Alum Springs contains free H_2SO_4 . The Rockbridge Alum Springs contains aluminum sulphate $\text{Al}_2(\text{SO}_4)_3$. The Shenandoah Alum Springs contains aluminum sulphate $\text{Al}_2(\text{SO}_4)_3$, and the Wallawhatoow'a Springs contain aluminum sulphate $\text{Al}_2(\text{SO}_4)_3$. Usually this class of waters contain the sulphates of iron and aluminum, although there are a few springs which contain free sulphuric and hydrochloric acids.

Radio-Active Waters.—There is only one locality, so far as is known at present, which contains radio-active emanations, and that is at the Virginia Hot Springs. Five of the springs in this area on scientific test have revealed the presence of radio-active emanations.

THE PHYSIOLOGICAL ACTION OF MINERAL WATERS

Alkaline Waters.—The physiological actions of the sodic bicarbonated alkaline waters increase metabolism, dissolve uric acid, and allay irritation of the mucous membranes of the whole genito-urinary tract, and at the same time aid in the elimination of uric acid deposits from the system. The physiological action of the magnesic bicarbonated alkaline waters stimulates secretions, neutralizes acidity and in large amounts exerts slight laxative action. They are, perhaps, the best of all the bicarbonated alkaline waters for correcting acid conditions of the stomach. Their physiological action favors the elimination of uric acid deposits from the bladder and kidneys, and allays irritation of mucous membranes of the

genito-urinary tract. Increased uric acid excretion is always looked upon as a favorable omen, provided it is not due to increased uric acid formation, which may result, if an increased allowance of purin-containing foods are ingested. Calcic bicarbonated alkaline waters inhibit secretions of the digestive, respiratory and genito-urinary tracts. Such waters would exert beneficial action in cases of obstinate diarrhoea.

Alkaline-Saline Waters.—Physiologically, the sulphated alkaline saline waters exert diuretic action, and in large quantities increase peristaltic action, liquify the intestinal contents, and promote slight purgative action without unpleasant after-effects. This class of waters stimulates the excretions of bile and improves the tone of the muscular tissues of the bile ducts, thereby assisting in the expulsion of excrementitious matter. They are obviously of great help in the proper function of the stomach and aid the action of synergistic remedies which may be indicated. This class of waters also acts on the circulation of the blood in the liver, assuages catarrhal and inflammatory changes in the gall-bladder and bile ducts, dilutes the bile and promotes its excretion.

Saline Waters.—The physiological action of the sulphated saline waters exerts a laxative or purgative action, according to the percentage of the predominating sulphate ions present, and the quantity of the water ingested. The calcic, sodic, sulphated saline waters exert a carminative action on the stomach mucosa, dissolving and eliminating mucus from the stomach and bowels. It also relieves kidney irritation, rapidly facilitates diuresis, thus increasing kidney function. Their physiological action promotes interchange of fluids and salts in the tissues, modifies secretions and excretions, and stimulates oxidation and cellular activity. This class of waters also exerts diuretic, antacid, and disintegrating effects upon vesical and renal calculi; the urine is rendered less acid and less irritating, and is much less likely to deposit urates; therefore, the tendency to stone formation is decreased and, when present, the solvent action of the waters gradually tends to disintegrate stone formation.

Ferruginous Waters.—Physiologically this class of waters increases the hemoglobin content of the blood, stimulates a flagging appe-

tite, promotes bodily vigor, and allays intestinal activity. Of all the chalybeate or iron waters, the bicarbonated is the most agreeable to take and the most efficient in action because of their prompt and easy assimilation by the system, due in large measure to the combined free carbonic acid held in solution in these waters.

Sulphureted Waters.—These waters physiologically increase the action of the integumentary system, the intestines, and kidneys. The internal administration of sulphur waters stimulates the appetite and gastric function—where there is a moderate amount of sodium chloride present; but if an excess of calcium sulphate is present, digestive disturbances will always result.

Thermic Waters.—The action of hot sulphur baths increases body temperature, stimulates heart action, diminishes blood pressure, and stimulates nutritive changes in the tissue cells, particularly those contained in the organs of elimination.

Acid Waters.—Physiologically, the ferrous sulphated acid waters have a styptic taste and exert an astringent action; those containing free sulphuric acid and free hydrochloric acid exert a slight astringent action on relaxed conditions of the mucous membranes, especially when characterized by chronic diarrhoea and dysentery.

Radio-Active Mineral Waters.—Waters containing radio-active emanations, when imbibed, pass directly through the walls of the stomach and intestines, passing thence by diffusion in the capillaries of the lymph and portal venous system. The energizing effects of radio-active emanations on the body ferments is most remarkable. Waters charged with radio-active emanations seem to be endowed with the power of energizing or activating the body ferments or enzymes; in other words, they stimulate to greater efficiency the proteolytic and diastatic ferments and set in motion that long chain of cleavage processes in the various foodstuffs, the necessary prelude to their absorption, assimilation and ultimate transmutation into living protoplasm. Furthermore, radio-active emanations increase autolytic, diastatic, glycolytic, urolytic, pancreatic, peptic and lactic acid fermentation.

DISSOCIATION THEORY OF MINERAL SALTS

From the hydrolytic standpoint, an acquaintance with the laws which regulate saline solu-

tions is of momentous importance, since a mineral water is an exceedingly complex inorganic body, whose properties are dominated by its physio-chemical constitution. According to the ionic dissociation theory, a salt in solution forms an electrolyte and is completely split up into ions, and, under the influence of true vibratory conditions, perpetual exchange of ions takes place from molecule to molecule; these ions vibrate, side by side, and, according to positive or negative influence, join with the ions of a neighboring molecule. These ions vibrate in the solution under the positive or negative influence of their electric charges. Therefore, it is fallacious to entertain the idea of mineral water as an inert body; it represents, on the contrary, a real mineral species, complex, of course, but a perfectly balanced association of molecules and ions endowed with certain specific properties—*Life*. These molecules and ions possess an electrical equilibrium, a positive attraction or a negative repulsion, and in certain qualities of living forces, all of which come into play in the solution; the molecules and ions react on one another in a multitude of exchanges and combinations, rapidly made and as quickly undone! A mineral water is a very complex solution, it represents a living medium, the knowledge of which is yet incomplete, but nevertheless highly interesting. Furthermore, in all probability, the ions, rather than the dissociated elements *per se*, are responsible in great part for the specific action of mineral waters; this dissociation theory explains, or at least gives an insight into the pleasing effects obtained from the administration of mineral waters. Ionic dissociation does not, therefore, change the percentage composition of a salt, but may substantially change or modify its therapeutic potency. If the medicinal virtues of a natural mineral water depended alone upon its water constituent, it is questionable if invalids would have sought the curative influences of the various mineral springs which have successfully stood the test for centuries past.

THE VALUE OF MINERAL WATERS IN CHRONIC DISEASES

Long experience emphasizes the fact that the greatest usefulness of these natural medicinal agents is in chronic disorders, where they are found eminently serviceable. To secure beneficial results in this type of disease, the use of the waters, like the disease, will have

to be continued for weeks or even months. Instantaneous cures need not be expected, but the remedy should be persistently and patiently administered and relief will gradually be brought about. Like all other medicines, mineral waters should be used, discontinued or modified in their dosage or usage, with a strict regard to their therapeutic action on the body and their beneficial or outward effects upon the disease. Whenever prescribed, their actions should be watched with the same care with which we note the action of any other drug; they should be continued or temporarily or permanently discontinued or controlled in their action by some appropriate adjuvant according to the indications and as the progress of the case demands.

ADAPTATION OF MINERAL WATER TREATMENT TO DISEASE

In prescribing mineral waters, we are guided by the predominating chemical constituents as revealed by analysis, and we can never be absolutely certain but that substances present in much smaller quantities, or even in infinitesimal traces do not play a more important role in the physiological action of the water than is generally conceded. Chemical science has done much to put the administration of mineral waters above empiricism and on a safe and scientific basis of clinical experience. After all that science effects in determining the component parts of a mineral water, it is experience alone, from their use, that can be fully relied upon as to their specific virtue or applicability in a given disease.

CLINICAL EXPERIENCE

It is upon clinical experience alone that the therapeutic properties of any remedy is weighed and its curative virtues determined. Some of the most eminent medical authorities, legion in number in this and other countries, have tested clinically the medicinal virtues of mineral waters, and given their unqualified endorsement attesting the therapeutic action of mineral waters as remedial agents. It must be borne in mind that mineral waters are not a "panacea" for all the ills of mankind. There are many diseased states of the system where they are not even indicated, and, if administered, may exert harmful influences. On the other hand, they are exceedingly valuable medicinal agents, and will unquestionably give relief in many diseased conditions where the ordinary galenicals will not.

CONFIDENCE IN MINERAL WATER THERAPY

An earnest presentation of the therapeutic properties and the scientific administration of a mineral water, based on its mineral constituents as shown by analysis, and attested by the experience of eminent physicians, should command the serious consideration of the unbiased practitioner and convince him that we have in these agents a valuable addition to the materia medica, and one we may prescribe with the utmost confidence when the pathology behind the disease or diathesis is appreciated and a suitable water selected.

The necessity for teaching hydriatics in American medical schools is apparent on all sides. In the past, medical students have not been instructed in the therapeutic properties of the various classes of mineral waters, nor have they become acquainted with their physiological action and clinical indications. This knowledge is of momentous importance and cannot be successfully disseminated except through a chair in the leading medical schools, which, thus far, have shown little or no inclination to supply this dearth of information. Until the science of medical hydrology is properly taught, American physicians will continue to send patients to the European spas, where they know that on arrival the patient will be placed under the supervision of a physician who thoroughly understands the physiological action and therapeutic effects of mineral waters and is skilled in medical hydrology. During the recent past, there has been manifested unmistakable revival of interest on the part of the profession in the therapeutic value of mineral waters in the treatment of chronic disorders. This renewed interest in medical hydrology is encouraging, for we have in our own country every variety of mineral water found in other parts of the world. If the American medical profession is satisfied to be mere feeders to European spas, there is no incentive to study medical hydrology; but if they want to keep abreast with present day science and render intelligent useful service to their patients, then they must of necessity understand crunotherapy and balneotherapy.

DISCUSSION.

DR. MARK W. PEYSER, *Richmond*:—It has been said that if an individual pursue at home the same method of living that he does at the springs—following the same diet, taking the same amount of exercise and drinking copiously of water—he would derive therefrom as much benefit as though he did these things at the springs. This is probably true

in many instances, especially where the water has no marked chemical properties. But at Rawley Springs (which Dr. Fitch failed to mention), twelve miles west of Harrisonburg, there is a bold spring of iron water that has no peer in this country and an equal only at Spa in Belgium. In it the mineral exists as ferrous carbonate in a nascent state. So delicate is the solution that upon standing for an hour or two only, the iron is precipitated in the form of an oxide; and various attempts to bottle it so as to maintain the ferrous state and enable it to be placed on the market, have failed. I have seen some remarkable instances of relief and cure following a course of this water; and have, myself, experienced much benefit from its use. In addition to its ferruginous properties, it is markedly diuretic.

MEDICAL ASPECTS OF HEAT.*

By MARK W. PEYSER, M. D., Richmond, Va.

The greatest resistance to the inward passage of heat is the skin, but this resistance may be lessened by a combination with moisture, or it may be almost entirely overcome by moisture plus a higher form of energy which is converted into heat by the resistance of the deeper organs and tissues.

The action of heat is manifested by an increased flow of blood, a vasodilatation, an active hyperemia, whereby, even when locally applied, the temperature of distant parts may be raised. There are increased activity of the heart and lungs; in addition, at high atmospheric temperatures, sweating occurs, more carbon dioxide is thrown off from skin and lungs, more oxygen is absorbed, and urea, uric acid and other waste products are thrown off in larger amounts because of diuresis. Blood pressure may be temporarily increased; and pain and spasmodic contractions are lessened through action on the sensory nerves.

For therapeutic purposes, heat may be applied locally or generally.

LOCAL APPLICATIONS: Counter-irritants produce, first, reddening and stimulation of the skin, the vessels of which are dilated by direct action on the nerves. Local circulation increases, and sensory-nerve irritation produces pain. Heart-action is more rapid; blood-pressure is raised through reflex contraction of the blood-vessels generally; temperature of the parts is elevated, and breathing slowed. Finally, unless action is pushed to the stages of vesication and pustulation, pain is relieved through depressor action on the sensory nerves.

Counter-irritation may be applied in the following conditions: 1. Subacute or chronic

*Read at a meeting of the Stuart Circle Hospital Clinical Club, November 9, 1927.

inflammation with or without unnatural growth of parts in direct vascular connection with the skin, as of a bone or joint; 2. Congestion or inflammation in neighboring viscera, as of the lungs; 3. Pain in deep or distant parts, as neuralgias; 4. Spasm or other morbid activity in deep muscular structures, as lumbago and vomiting; 5. Central nervous disturbances, as syncope and hysteria.

Where prolonged or repeated applications of heat are needed, methods other than counter-irritation should be employed.

Heat may be applied locally, dry, by means of a hot iron; the hot-water bag; frictional massage, either manual or mechanical; the Oudin current through a vacuum-tube or metallic brush; diathermy; incandescent electric bulbs; the infra-red rays; carbon ultra-violet lamps; baking apparatus heated by alcohol or gas; or by electric lamps.

The day of the red hot iron in medicine has passed, but heated poker and flat-irons are occasionally used in the treatment of intractable lumbagoes, sciaticas, and other inflammatory nerve and muscle conditions.

The hot-water bag is soothing, and, as it produces a mild hyperemia, it may be used also to aid absorption of inunctions and other local medicinal applications.

The Oudin, which is a monopolar, high-frequency current, is counter-irritant when not in close contact with skin or mucous membrane. When administered by means of a plated or a vacuum tube, it is used in the treatment of otitis media, some nasal conditions, and various vulval, vaginal, uterine, urethral, prostatic, anal and rectal diseases. Superficial conditions may be treated by means of a flat electrode applied directly or through the hand of the operator who holds the electrode in his other hand.

With diathermy, which also is a high-frequency current, two electrodes are employed, their size, shape and distance apart and time of application being determined by the part under treatment and the condition present. During the passage of this current, electricity is stepped down to heat by tissue resistance, and while a large amount is generated at the contact surfaces, the greatest amount will be found in the interior of the part treated. Laboratory investigations are said to have demonstrated that high-frequency currents can disintegrate calcareous substances. If so, dia-

thermy has a two-fold application in gout, hypertrophic rheumatism and in inflammations with calculi.

Owing to the high heat it generates and the penetrative character of that heat, diathermy is employed in urethritis, specific and non-specific, in cervicitis, endometritis, metritis, rheumatism, synovitis, prostatitis, neuritis, neuralgia, etc.

Goococci will not reproduce at temperatures above 140° F.; and are said to be killed in 30 minutes at 108° F. In vitro, however, destruction is said to occur only when they are subjected for the same length of time to 140° F. This holds true for staphylococci also; while tubercle bacilli are killed in 20 minutes and streptococci at from 110-125° F. in 30 minutes. A heat from 104° to 107.6° F. has been beneficial in the treatment of chancroids and buboes.

Investigators have reported that a temperature of 140° F. can be obtained with diathermy, but when employing a thermometer in the active electrode, it should be remembered that the temperature registered is that of the surface, not the interior, heat.

Diathermy can be made to play an important role in the treatment of lobar pneumonia in the early stage, not that it invariably or frequently reduces temperature or shortens the course of the disease, but because it relieves the pain and embarrassed respiration and contributes towards a more rapid convalescence.

Cancer tissue, according to Ehrlich, ceases to be viable when subjected to a temperature of 112° F. for thirty minutes; and, according to the New York State Cancer Hospital, cancer cells die when exposed to 116.6° F. for that length of time.

Incandescent electric bulbs are employed singly or in groups in reflectors, cabinets or other containers arranged for the treatment of a single limb or joint or trunk area. The heat so generated is comparatively non-penetrating, but may be made merely analgesic or counter-irritative according to the distance from the part under treatment, the length of exposure, and the type, size and number of lamps. When used in a closed cabinet, the affected part should be wrapped in towelling that will absorb the sweat and so prevent blistering. General sweating frequently occurs as a result of this type of treatment. Though exposure to a single bulb is commonly called

"baking," the term is properly applied to the treatment administered by means of a closed cabinet.

Heat produced by the infra-red rays is next to that of diathermy in penetrative power. Its indications are the same. Favorable results have been obtained from its use in passive hyperemia, synovitis, rheumatism—so-called,—neuralgias, neuritis, etc. It is not necessary to focus the visible rays on the part under treatment.

Local applications of heat may be moist: 1. Plain water at temperatures from 101° F. to 106° F. attract blood to the part treated, being useful for stimulation of the menstrual flow; or from distant parts to relieve internal congestions, e. g., catarrhal conditions, sun-stroke, apoplexy, etc.; 2. Medicated waters, e. g., hot solutions of various salts, boric acid, etc.; 3. Poultices, which are seldom clean, and for which the solutions can well be substituted.

Heat may be applied generally by means of water and vapor baths, plain or medicated, air baths and autocondensation.

The tepid bath, at from 85° to 95° F., is cleansing and calmative, lessening the restlessness of fever and lowering temperature.

The warm bath, at from 95° to 100° F. raises local temperature; stimulates local circulation; stimulates the glands, increasing the discharge of such secretions as perspiration and urine; and soothes the nerves and corresponding centers. It is diaphoretic, anodyne and antispasmodic.

The hot bath, at from 100° to 106° F., has the same properties as the warm bath, but in greater degree.

The vapor bath, of which the Russian bath is typical, is applied at from 95° to 110° F., and is much like the warm or hot bath, but slower in action.

Dry heat can be borne at much higher temperatures, that of the hot air or Turkish bath, for example, being as high as 220° F. Cold water is applied following its employment. It is, first, diaphoretic, then stimulant; is soothing and increases metabolism. Its uses are the same as those of the warm water and Russian baths.

In the body-baking apparatus, temperature may be elevated to as high as 400 degrees, harmful effects to the brain being prevented by cold, wet towels to the head (which projects into the outer air), the body being

wrapped with Turkish towelling to absorb sweat and thus prevent blistering. With the heart beats accelerated, sometimes up to 160, and the number of respirations in proportion, diseases of the heart and blood-vessels contra-indicate the employment of such very high temperatures. But where not contra-indicated, this mode of treatment is valuable in subacute and chronic rheumatism, ankylosis, general infections, uremia, etc.

* A method of administering heat to the bed-fast patient, much more convenient than the baking apparatus, is the electric blanket which can be placed in the bed and snugly wrapped around the patient. The amount of heat generated is not as great, but good results may be expected from its use, while, at the same time, it is safer.

With the cabinet, either vapor or hot air may be administered to the body, the head being protected as when using the body-baking apparatus.

Autocondensation is about the simplest means of applying heat to the whole body, so far as the patient is concerned. Seated on a hinged pad connected to one pole of a D'Arsonval solenoid, the other pole being connected to an electrode held by the patient, the only sensation is that of heat if good contact is being made; otherwise, a sharp prickling will be felt. The heat from this source being more penetrating than that from other sources, the physiological effects are more profound. Indications for its employment are the same as for heat from other sources: Hypertension, with or without arteriosclerosis if uncomplicated by low systolic and high diastolic pressures and myocarditis; rheumatic and gouty diatheses; Bright's, uremia, dysmenorrhea, amenorrhea and the menopause; neurasthenia, insomnia, etc.

Diathermy, of which we have spoken, is the local application of the D'Arsonval current.

Heat may be administered to the body in the form of sun-baths, local or general, but as the heat-rays play a very minor part in the ends sought, these baths will not be discussed.

Penetration of the ultra-violet rays generated by the air-cooled mercury lamp, which is slight, may be much increased by prior or simultaneous exposure to an infra-red ray generator because of the active hyperemia produced by the latter. This aid, however, is unnecessary if the carbon-arc lamp be used,

that apparatus emitting not only the ultra-violet, but the infra-red rays in addition.

Shock after injury, chilling after exposure, or collapse from loss of blood or other conditions, may be successfully combated by general exposure to heat generated by hot bricks or hot-water bottles placed alongside of the patient. Or he may be placed in bed, snugly wrapped in blankets drawn close about the neck, and heat, generated on the floor by alcohol lamps or otherwise, introduced beneath the covers by a pipe; or he may be placed in the body-baking apparatus or wrapped in the electric blanket.

Attacks of epilepsy in which there is toxicity of the blood, urine and sweat have been ameliorated or prevented by the hot-air bath.

Hot sand or mud-baths are used for the cure of rheumatism, paralysis and spasmodic muscle contractures.

Cold when applied to the body, produces some superficial congestion which is quickly followed by rapid contraction of the blood-vessels and lowering of the surface temperature. In the healthy individual, if the exposure has not been severe, there is prompt reaction, the vessels dilating, the heart beating with increased force and frequency, and the temperature rising to normal or beyond. It may be inferred, therefore, that under these conditions, the physiological action of cold resembles that of heat.

Cold is beneficial in two classes of cases: 1. Where it is desired to affect the organs and tissues of the part; 2. Where it is sought to lower general temperature, as in the hyperpyrexia of typhoid and scarlet fevers, and sunstroke, using it as antipyretic.

While cold is tonic and stimulative, reaction being hastened by brisk friction, it is also, sedative and anodyne, acting by abstracting heat and lowering nerve-conductivity which may be carried on to the stage of anesthesia by freezing. A shower or douche of cold water along the spine is anaphrodisiac, or it may be used to stimulate respiration in narcotic poisoning or to institute it in the asphyxia of the new-born. Poured over the head and neck, cold water acts as an antispasmodic in spasm of the glottis. In chorea, persistent vomiting, and hysteria, it may be used as a douche to the spine. The chordee of gonorrhea is allayed promptly by cold affusions to the penis. Hysterical catalepsy, hys-

teria major, and convulsions are benefited by douching cold water on the face and mouth. Similar treatment is useful in uterine inertia either before or after childbirth; and the cold, wet hand over the uterus is an excellent aid to the expulsion of the placenta. Post-partum hemorrhage has been successfully checked by ice placed in the vagina. A cold douche to the spine will cause diuresis and set up bladder contraction.

In gouty and rheumatic joints and joint inflammation from other causes; in sprains and myositis; in tonsillitis and pharyngitis, the cold compress affords relief and hastens cure.

The ice-bag plays an important part in the treatment of such conditions as meningitis, encephalitis, headache and delirium; in pericarditis, pneumonia, orchitis, epididymitis and bubo; and in neuritis, neuralgias and eye wounds.

In infectious generally, when the heart seems to be racing itself to death and the patient is not too asthenic, the ice-bag gives comfort by often reducing both the force and frequency of the organ.

It is claimed that excellent results have been obtained in phlegmasia alba dolens by the application of ice-bags to the affected limb which has previously been wrapped in a cold, wet sheet.

Liquid air has been used in the cure of varicose ulcers and chancroids, and in the relief and cure of sciatica, herpes, and intercostal and facial neuralgia.

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19 South Boulevard.

DIAPHRAGMATIC HERNIA OF THE STOMACH—WITH REPORT OF CASE.*

By K. D. GRAVES, M. D., Pearisburg, Va.

Hernia of the diaphragm may be classified as congenital, traumatic and acquired.

Congenital hernia is usually due to faulty development. In the embryo the pleural and peritoneal cavities are continuous. As development takes place the two cavities become separated by a thin membrane which is the

*Read at the meeting of the Southwestern Virginia Medical Society, at Bristol, Va., September 22-23, 1927.

beginning of the diaphragm. This may be arrested at any stage of development, wholly or partially. Where there is only a relatively small defect, it is probably frequently overlooked, and may not cause symptoms.

Traumatic hernia is caused by such a wound as a stab or gunshot, or some crushing injury.



Fig. 1.—Before operation. Stomach filled with barium meal.

Acquired hernia is due to a weakness, usually in one of three locations, viz.: (1) the foramen of Bochdalek, between the attachment of the diaphragm to the 11th rib or spine; (2) the foramen of Morgagni, between the attachment of the diaphragm to the cartilage of the 7th rib and sternum; and (3) at the esophageal opening. Acquired hernia may be due to an injury or some strain, although it is doubtful if this alone could cause hernia unless there were present already a weakness of one of the areas mentioned.

Following are a few references to cases of hernia of the diaphragm, which will show its relative frequency:

The Mayo Clinic¹ reports one case of diaphragmatic hernia in every 23,000 patients ex-

amined, having had twenty-one cases from 1908 to 1923.

Friedenwald and Feldman² report six cases, all in women between the ages of forty-one and sixty-two years, and all being through the esophageal opening.

Morrison³ reported an X-ray study of diaphragmatic hernia on forty-two cases out of 3,500 gastric cases studied.

Rowlands⁴ reported that in Guy's Hospital, from 1856 to 1920, only two cases were recorded, both traumatic.

The usual symptoms complained of in the above cases as recorded were pain, nausea, vomiting, distention, constipation, dyspnea, dysphagia, abnormal sensation in the chest, any of the above or most of them being often present, but not essential to the diagnosis. One said the stomach felt lifted up; another, that he felt as if the lung rubbed on a bag of air on inspiration. A rumbling noise in the chest as high as the nipple line was mentioned by another.

In the Mayo Clinic series referred to above,

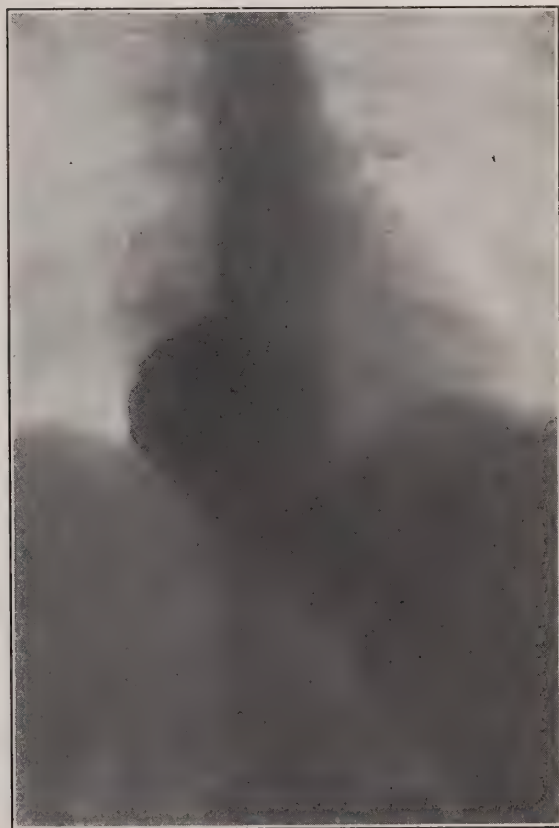


Fig. 3.—Six months after operation. No improvement noted.
Editor's Note.—It was necessary to place Fig. 3 ahead of Fig. 2 on account of the size of illustrations.

operation was performed in thirteen of the twenty-one cases. Ten patients survived the operation, of whom nine have been traced. Six of these were living and well in 1923, although it was not stated how much time had elapsed since the operation. At the Mayo Clinic the condition most closely simulating hernia of the diaphragm was eventration of the diaphragm.

The case I wish to report, Mrs. M. G., came in for examination July 3, 1926. She is white, married, aged twenty-eight years. She had not felt entirely well for about seven years, since an attack of "flu." She complained of pleuritic type of pain in the right side of chest, anteriorly, about level of 4th rib; general

weakness and nervousness; stomach distress of two days' duration; epigastric pain, and nausea without vomiting. Her history was not significant, except that she had lost thirty-five pounds in weight in the last six months. She had been an elocution teacher, and prided herself on her five inches of chest expansion. There was no cough, expectoration, hemoptysis or night sweats.

Physical examination was practically negative except that the patient was pale and harassed looking, and very frail. The chest was negative except that some doubtful rales were heard in the right apex above the 3rd rib. Blood, urine, sputum and Wassermann tests were all negative. No irregularity of pulse



Fig. 2.—Before operation. Stomach emptying. The outline of the herniated portion of the stomach may be noted.

or temperature was noted. Sinuses negative on transillumination.

The X-ray of the chest was negative, except there was considerable hilus involvement, and some calcified glands.

The X-ray examination of the stomach was as follows: after barium meal, in standing position, the substance showed no delay in passing through the esophagus; and spread normally down the wall of the stomach to the pylorus, filling this. The duodenal bulb filled normally. No ulcer or filling defect was noted.

When patient was placed in reclining position a mass the size of a tangerine was noted

below and to the right of the mediastinum. Upon pressure on the stomach, this could be forced up to the level of the third rib. It appeared to extend from and be continuous with the stomach shadow; and by rotating the patient it was determined that it was a portion of the stomach extending through the esophageal opening of the diaphragm. After this portion of the stomach in the chest was filled, if the patient was again placed in the standing position, the outline of the tangerine-like mass was noted in very much the same location, although only the bismuth which adhered to the stomach wall showed up, most having



Fig. 4.—Same as 3. When emptying, the herniated portion of stomach shows a tendency to withdraw from diaphragm instead of remaining attached as in Fig. 3.

drained out. In other words it appeared that the herniated portion of the stomach was not reduced by standing, but simply would not fill unless patient was lying down.

The patient was operated on by a surgical consultant, who confirmed the diagnosis. A portion of the posterior wall of the fundus of the stomach extended up through the esophageal opening. This was drawn back down into the abdominal cavity, and the hiatus closed with several rows of kangaroo tendon.

The symptoms returned in a few months after operation, and Figures 3 and 4 show the stomach seven months after operation. She has refused another operation, and her present condition is just about as it was before, except that she now suffers with rather severe pain in the lower left chest, and is being treated for pleurisy by her family physician.

I wish to express my appreciation to Dr. J. T. McKinney, of Roanoke, Va., and to Dr. J. D. Camp, of the Massachusetts General Hospital, Boston, for their very kind assistance in commenting on my films in this case.

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SIGNS AND SYMPTOMS OF MASTOIDITIS PARTICULARLY AS INDICATING SURGICAL INTERFERENCE.*

By WM. C. MOOMAW, M. D., Petersburg, Va.

This paper is presented because the writer was requested to "read a paper" and not because of any loquacious tendencies in this direction; hence, any praise or punishment should be addressed to the program committee.

I wish to thank Dr. Wright Clarkson for his films and for his discussion.

It would at first appear late in the season to discuss mastoid conditions, but the summer months are by no means free from nose, throat and ear infections, complicated by an extension of such infection into the mastoid "cav-

ern". Patients given to the amphibian call often bring their aquatic sports to an abrupt focus at the end of an ear speculum. In the large coast cities the ear clinics are often filled on Monday afternoons during bathing season. It is gratifying to know that we have advanced far enough in a knowledge of ear infections not to make the error of informing these patients that probably the water in which they swam was polluted. We now know that these patients are hosts to foci of infection in the mouth, throat and nose, and that a cough or a sneeze or blowing the nose after submergence is sufficient to drive infectious material through the eustachian route to the tympanic cavity. The patent devices sold to swimmers for the purpose of plugging up the external auditory canal will in no wise prevent these infections.

Before entering into a discussion of the signs and symptoms of surgical mastoids, permit me to say that the treatment of mastoid cases has not as yet been brought up to a sufficiently high and commendable level of standardization. It is a firm conviction, based upon some little experience in treating mastoid cases, that entirely too many mastoids which are within safe limits of resolution and restoration, are consigned to surgical interference, subjecting the patient to needless anguish and expense. This is not an imputation. The fact, I believe, is deeply imbedded in the further fact that diagnosis of mastoid states has not been clearly worked out and standardized in individual minds. There are too many loose ends between pathology and diagnosis. To be explicit, the variance lies, probably, in the failure to differentiate definitely between what some otologists term *mastoiditis* and *mastoid abscess*. This classification is important because it draws a more or less fixed line between non-surgical and surgical mastoids.

What is the difference between the two? I desire to quote from a standard text-book because of the clarity and conciseness of statement. "The first stage of the involvement of the (mastoid) cells is a congestion and exudation of serum which may extend throughout the mastoid or be limited to a part of it. In this stage there is no breaking down of the septa of the cells. Politzer has shown that there are communications between the cells through which the process readily extends. The lining of these pneumatic spaces is a modified muco-periosteum, but it is capable of great

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inflammatory reaction. If a mastoid is opened, which is in this stage of inflammation, no pus will be found, but the cells will be red and filled with serum which is more or less tinted with blood. Following this stage with more or less rapidity, according to the activity of the process, is the formation of pus. If such a mastoid be opened, the cells will be found filled with pus *but the septa seem intact*. In the third stage *the septa break down and granulations are formed which are not osteoblastic in nature*. One occasionally opens a mastoid where granulations have formed in cells with intact walls. They may be found in a part of the mastoid only, usually that part furthest from the antrum, while the rest of the mastoid is in any of the stages above described. They are no doubt osteoblastic in nature and represent an effort at repair and limitation of the process by formation of new bone. When they occur in a mastoid in which the remaining pneumatic spaces are filled with serum, it doubtless indicates that the condition is either in process of, or capable of, resolution. After the septa between the cells are broken down and an abscess formed, the pus exists in sufficient amount to render drainage through the tympanum practically impossible, no matter how large the defect in the membrana tympani. Besides the process is of such nature that the breaking down of bone seems to be a part of it. So, as this pus accumulates it comes to the confines of the mastoid process and ruptures through them". Herein is clearly set forth the *two zones* in mastoid pathology, *mastoiditis* and *mastoid abscess*, which are indicated, as we shall presently attempt to show, by definite and dependable signs and symptoms.

There is a striking parallel between the pathology of acute mastoiditis and the pathology of acute nasal sinusitis, and be it said that rhinologists have worked out a wider and more conservative margin between sinus pathology and treatment than have otologists in the management of mastoids. In either case we have a cell-partitioned cavity in close proximity to vital structures; these cells, large and small, are lined with a modified mucosa—a muco-periosteal membrane,—covering bone. In either case, mastoid or sinus, the cavity is provided with drainage, good or bad; either cavity is subject to infection by practically the same group of organisms and the supervening

pathology in either case is practically the same, and the signs and symptoms indicative thereof are in either case sufficiently clear to guide the trained observer to the proper measures of relief. Unfortunately, when it comes to treatment of these two entities, this parallel gives way to widely diverging lines of procedure.

Keeping clearly in mind the pathological distinction between a mastoiditis and a mastoid abscess, let us now ask, what are the signs and symptoms of mastoiditis indicating surgical interference?

Obviously, we shall not refer to such glaring signs and symptoms as subperiosteal abscess, indicating rupture through the mastoid cortex; nor to the intra-cranial pain and pressure symptoms, indicating rupture through the inner plate; nor to the blood changes and wide temperature curves, indicating a sinus thrombosis; these are so manifestly indicative of a surgical mastoid that they need not enter into the discussion.

First, what are the symptoms and signs of simple or non-surgical mastoiditis? Briefly, they may be stated as: 1. Tenderness on pressure; 2. Discharge, in quantity known to be in excess of that which could arise in the tympanic cavity; 3. Pain, which is usually exaggerated at night; 4. Temperature of moderate degree and rarely exceeding 101 or 102; 5. Fundus changes, as indicated by redness of the external canal wall, and sagging of the upper posterior wall particularly in the region of Shrapnell's membrane which overlies the mastoid antrum; 6. The X-ray-graph, which would show the septa of the cells still to be intact. These are the principal signs and symptoms of mastoiditis.

Now, what departure from or modification of these symptoms could be safely interpreted as indicating that resolution of the inflammatory process is not taking place, and that, therefore, the mastoid had passed over to the surgical stage?

It must first be assumed that the best possible drainage had been obtained and maintained through an adequate opening in the drum membrane. *The spontaneous rupture through the tympanum is usually not sufficient*, and the external canal *must be cleansed*, preferably, I find, by carefully regulated irrigations in addition to local treatment.

The evidence of a surgical mastoid must be drawn from a symptom-group. It is the group,

picture which is of value, rather than any one symptom taken separately. In a word, the picture is this: *Increasing tenderness on pressure, persisting pain and temperature with a diminishing or interrupted discharge, and with a breaking down of the cell walls as evidenced by the X-ray film.*

Persisting pain and tenderness are especially significant when coming on late in the process, or returning after a lapse of these symptoms. It must be kept in mind that these signs and symptoms are often inconspicuous or even lacking in instances of streptococcus capsulatus infections.

If the temperature rises consistently above 102° F, look for the cause of it elsewhere in the body. Mastoid temperature, per se, rarely exceeds this.

The above signs and symptoms undoubtedly indicate that the inflammatory process is still active, that the drainage is inadequate, and that resolution is not and likely will not take place. Confronted by this syndrome, one would be justified in opening up the mastoid process. There are other minor symptoms, such as fundus findings, and a thickening and characteristic "feel" of the mastoid covering due to involvement of the mastoid cortex, but these are not constant.

At this stage of an involved mastoid, otologists generally have come, I believe, to rely greatly upon the evidence as brought out by the X-ray report. At this doubtful stage the question which surges to the fore is, "Are the cell-walls breaking down—is there bone destruction?" This question correctly answered should assist the surgeon to a safe decision as to what the further treatment must be.

It is needless to remind you that a continued discharge extending over a two or three weeks' period, and in the absence of infected tonsils, adenoids or sinus infections, usually indicates a surgical mastoid; but be sure we are not dealing with a pus adenoid or a pus antrum.

14 Marshall Street.

DISCUSSION

DR. WRIGHT CLARKSON, Petersburg, Va.:—Doctor Moomaw has very kindly asked me to discuss this paper and to show you some slides demonstrating the differences between the surgical and non-surgical mastoid as revealed by roentgenograms. He has forcibly presented to you the cardinal points which must be taken into consideration in arriving at a definite decision as to the advisability of an operation. This decision must always be made by the otologist, and the X-ray must be taken as only one of

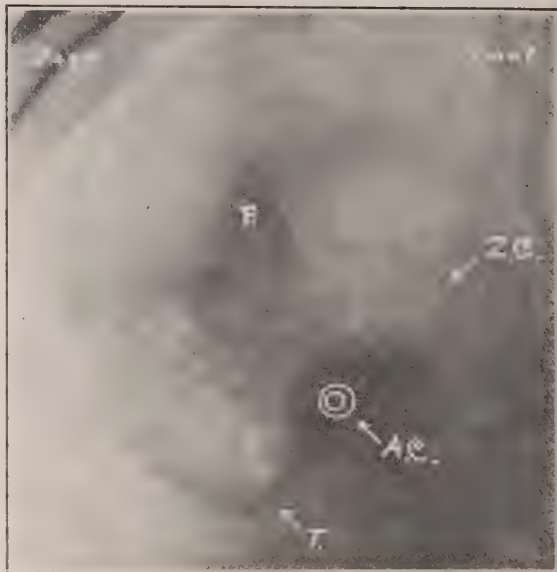


Fig. 1.—A normal mastoid with numerous cells extending forward into the zygomatic area. P., pinna of external ear; Z. C., zygomatic cells; A. C. auditory canal; T., tip of mastoid.

the phenomena to be considered. However, as I am going to endeavor to demonstrate to you, it is an extremely important measure in helping to make this decision and furthermore, regardless of whether an operation is contemplated or not, the otologist cannot be considered as having given adequate care to his patient with suspected mastoiditis until a thorough roentgen examination has been made.

Infections with the streptococcus capsulatus cause practically no pain or tenderness and the process usually advances to a hopeless stage before the physical signs become definite.



Fig. 2.—An infected mastoid at an early stage. The cells in the tip and overlying the knee of sinus are infected and, at present, the remaining cells are clear. Note that more than half of the mastoid cells in this case are located above and in front of the auditory canal.

In cases of infection of the external auditory canal not attended with a very definite furunculosis, the surgeon is likely to incise the ear drum, spreading the infection to the middle ear and mastoid. A roentgenogram should clearly demonstrate that these structures are not involved.

In definite middle ear infections, it is extremely important in the beginning to know whether or not the mastoid cells have been involved, for when the ear drum has been properly opened and the roentgenogram clearly demonstrates no infection of the mastoid cells, it is reasonable to believe that irrigating the ear is likely to force the infection



Fig. 3.—Mastoid abscess. Note that all of the cell walls are broken down and the large area formerly occupied by mastoid cells now consists of a large pocket of pus.



Fig. 4.—Sclerotic mastoid. Note no mastoid cells can be seen. This is the result of an old chronic mastoiditis, all of the mastoid cells having been gradually obliterated and replaced by dense bone.

into the mastoid, and I therefore, doubt the wisdom of irrigation in these cases.

Taking for granted that a certain mastoid is definitely surgical, we still need a roentgenogram to ascertain the extent of the mastoid, for as shown in figure 1, the mastoid cells often extend up into the zygomatic area and it is impossible to determine this without a roentgenogram. In fact, sometimes there are more cells just above and in front of the auditory canal than there are in the mastoid portion of the temporal bone, as is clearly demonstrated in figure 2. All of us who have worked in conjunction with otologists who disregard routine roentgen examinations have been called on frequently to X-ray acute mastoids for infected cells that were overlooked at the time of operation, and sometimes these cases terminate fatally. Therefore, I ask, are we justified in ignoring routine roentgen ray examinations in any suspected mastoid case?

The roentgenologist should endeavor to be definite in his statement as to the presence or absence of bone destruction, for as Doctor Moomaw states very clearly, this is of vital importance in assisting the otologist in making his decision relative to the advisability of an operation, but the roentgenologist is not justified in stating this alone, for the other points outlined above are of vital importance and will not be ignored by those who are making an honest effort to do their duty to their patients.

SYPHILIS OF THE EYE.

By C. A. YOUNG, M. D., Roanoke, Va.

Syphilitic affections of the eye may be congenital, hereditary or acquired, and when acquired may be present as a primary, secondary tertiary or parasyphilitic lesion.

None of the structures of the eye are immune to syphilis, the crystalline lens not excepted.

Syphilis is responsible for from 6 to 15 per cent of all cases of blindness.

Harman¹ states that syphilis is accountable for more cases of blindness than any other single infection.

Rasquin² presents statistics to show that syphilitic patients discovered by ocular signs are not known to be syphilitic in 57 per cent of men and in 87 per cent of women.

The eye manifestations of syphilis of the eye are due to the spirochaeta pallida or its toxins. Collins and Mayon³ state that up to the present time spirochaeta pallida have been found in primary chancre of the eyelids and conjunctiva, in the aqueous, in acute iritis, and in the cornea of syphilitic infants.

Sadek⁴ reports seeing forty-eight cases of primary syphilis of the eyelids or conjunctiva in the inhabitants of several Egyptian villages. The patients had been treated for various eye conditions by licking with the tongue by one

or other of two women quacks, each of whom was suffering from syphilis.

Gerschun's⁵ patient had a chancre of the lid due to the removal of a foreign body by the tongue of a fellow workman.

Fournier⁶ treated five cases of chancre of the eye among his medical colleagues, the infection being transmitted in each case by the patient coughing or spitting, while having the throat examined.

DeSchweinitz⁷ reports the case of a physician who developed a chancre of the bulbar conjunctiva as a result of some secretion entering his eye, during attendance on a case of parturition.

INTERSTITIAL KERATITIS.—Syphilis is the cause in about 70 per cent of the cases, usually due to inherited syphilis, and when caused by inherited syphilis is always bilateral. When due to acquired syphilis it is often unilateral.

IRITIS.—Syphilis is the cause in about 50 per cent of the cases, generally unilateral, but the other eye becomes affected in about 25 per cent of the cases.

Parsons believes specific iritis to be a sign of severe syphilis and quotes Trousseau's findings that thirty-four out of forty patients having specific iritis ultimately developed grave sequelae such as tabes and general paralysis. Three to four per cent of all syphilitics have at some time specific iritis.

CHORIODITIS AND RETINITIS.—Acquired and hereditary syphilis is the most frequent cause, usually bilateral and associated with fine vitreous opacities.

PAPILLOEDEMA OR CHOKED DISK.—Uhthoff⁸ found cerebral syphilis to be the cause of choked disk in 12 per cent of the cases; therefore, if in a case of choked disk no cause is found and decompression is not indicated, the patient should be given active course of mercury and iodides.

PRIMARY OPTIC ATROPHY.—Syphilis in the form of tabes and progressive paralysis of the insane is the most frequent cause. Primary optic atrophy is always bilateral and treatment offers very little hope; mercury should be used in the form of inunctions before giving arsenical preparations.

Gifford⁹ seemingly obtained good results from the injection of mercury or neosalvarsan into the cisterna magna or the anterior horn of the lateral ventricle.

Viner and McMurtry¹⁰ report two cases of

arrest of luetic optic atrophy by cisternal injection of mercury.

Hume¹¹ treated three cases of tabetic optic atrophy by cisterna magna injection of mercury but obtained no definite results.

OPTIC NEURITIS.—Syphilis is the cause in about one-third of the cases. In Newman's¹² clinic in Berlin, it has been shown that 81.9 per cent of infants suffering from hereditary syphilis have optic neuritis. Mercury again in the form of inunctions should be used before giving arsenicals.

OCULAR MUSCLE PALSIES.—Syphilis is the cause in at least 50 per cent of the cases having a paresis of the extra- and intra-ocular muscles.

UNILATERAL EXOPHTHALMOS.—Both hereditary and acquired syphilis are at times the cause of exophthalmos, showing the usual signs of an orbital tumor. In all cases of unilateral exophthalmos in which the etiological factor is not known, the patient should be given intensive treatment with mercury and iodides.

ARGYLL ROBERTSON PUPILS.—Pupils which react to convergence but fail to react to light are seen particularly in tabes dorsalis, parietic dementia and syphilis. Pupils that are unequal in size and oval (in the absence of posterior synechia, rupture of the sphincter border, etc.) are even more suggestive of syphilis than Argyll Robertson pupils.

Tarsitis is usually syphilitic in origin. Scleritis, inflammation and induration of the lacrimal gland, and orbital periostitis are at times due to syphilis.

SYMPATHETIC OPHTHALMIA.—Syphilis is not the cause of sympathetic ophthalmia, but does produce a type of iridocyclitis that is easily mistaken for sympathetic ophthalmia. While at Wills Eye Hospital, I saw several such cases.—one in particular, I remember very vividly. A young girl came into the hospital with a marked iridocyclitis of the left eye with many large precipitates on the posterior surface of the cornea. She gave a history of an injury of the right eye one year previously. Some weeks following the injury, the right eye was enucleated. Not knowing the surgeon who removed the eye, it was thought that a portion of the posterior pole of the globe might have been left in the orbit. The orbit was immediately opened and the optic nerve found showing a clean stump with no sclera or choroid attached. The Wassermann proved to be

positive and with appropriate treatment the left eye rapidly cleared with good vision.

CONCLUSIONS

1. Syphilis is an ever present possibility in eye disease and is capable of attacking any of the structure in and about the eye.

2. Inunction is the best method of giving mercury in syphilitic eye conditions, empiric but true.

3. In eye diseases due to syphilis, precede arsenicals with a course of mercury, preferably by inunctions. Duane states in Fuchs' Textbook of Ophthalmology—"The optic neuritis occurring in syphilitics after the use of salvarsan is not to be ascribed to the toxic action of the latter, but to the liberations of spirochaetae or their toxins. Such a so-called neuro-recidive is avoided if mercury is given with or before the salvarsan."

4. As a number of these conditions are the result of tertiary and hereditary syphilis, it is imperative that syphilis be cured during its early stages.

5. Exclude syphilis, particularly in orbital tumor, unilateral exophthalmos, suspected sympathetic ophthalmia and brain tumor.

6. Otolaryngologists and obstetricians should recognize and take proper precaution against accidental infection of the eye with syphilis.

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DIATHERMY IN THE TREATMENT OF GONORRHOEAL COMPLICATIONS.

By JACOB S. ROSENTHAL, B. S., M. D., Washington, D. C.

Gonorrhœal complications in the past have been subjected to many types of treatments, the success of which left many men in doubt as to the value of any one treatment over the preceding one just discarded. The most common of these complications are epididymitis and prostatitis, the former occurring in from twenty to thirty per cent of all cases particularly in dispensary practice. Prostatitis occurs in practically all cases where the patient has delayed several weeks before consulting a physician.

Much time and study had been given to these conditions, but it was not until 1906 that Hagner published his paper on epididymotomy as a treatment for gonococcal epididymitis. This paper was followed by the papers of others who had made advanced studies of this complication, Belfield in particular. As a result of these papers, epididymotomy became a more or less common procedure in cases of epididymitis handled by urologists and some of the general surgeons. For a number of years this offered the only means of rapidly terminating this condition. In 1923, Corbus and O'Connor read a paper on the use of heat produced by diathermy in the treatment of gonococcal endocervicitis. The results of these treatments were so satisfactory that they were tempted to try diathermy as a means of treatment of epididymitis.

The diathermy clamp for treating epididymitis, as devised by Corbus, consists of a pair of curved arms, one of which is movable. To the outer end of these arms are attached slightly concave, metallic discs, which are about four by five centimeters in measurement and made adjustable to fit more accurately the testicle and the inflamed epididymis. Lead wires are attached to these discs along the fiber arms of the clamp, and from thence to the generating machine.

The results from the use of diathermy have been excellent in this condition; my own experience has been that it is the method of choice as it involves less pain, less disability, no hospitalization, and little or no economic loss because of inability to work during the existence of this condition. I am firmly convinced that epididymotomy as a treatment for gonococcal epididymitis is now obsolete and the more astute urologists will gradually be weaned from the operation that has had such a following in the past. There is no longer any excuse for having a patient remain from several days to a week or more in a hospital, when he can be given almost immediate relief from pain (quicker than with an epididymotomy), and a subsidence of the swelling in practically one-half of the time.

In cases of prostatitis with symptoms of pain, urgency and frequency of urination, and where the tenderness is such that massage is impossible, results can be achieved by diathermy much more quickly than with rectal irrigations or any other form of heat applications. After these treatments for several successive days, the usual massage treatments may be given. I believe that early diathermy treatments will prevent the formation of prostatic abscesses, since the treatment either kills outright, or greatly attenuates, the gonococcus.

APPLICATION.

In epididymitis the patient is placed upon the table and the affected parts along with the suprapubic region exposed. The surfaces where the electrodes are to be placed are moistened with soap lather, and the electrodes are so placed as to cover both testis and epididymis. In place of the Corbus clamp, one may use plain metallic discs about two inches in diameter, placed on opposite sides of the testis and epididymis, and achieve the same results, though the electrodes in this case will have to be held throughout the entire procedure—a somewhat tiresome task. After the electrodes are in place, the current is gradually turned on and increased to the point of discomfort for the patient; it is then reduced to a comfortable point and held there. The length of the treatment depends upon the judgment of the operator; I use fifty-five minutes though the time may be either increased or decreased for any given case, but in no case should it be less than forty minutes. Four to six treat-

ments on successive days are ample for any case.

In prostatitis of the type mentioned, I make use of an abdominal inactive electrode about three and one-half by seven inches. This is covered by felt padding which is well soaked before being applied to the patient. The patient is placed upon the table and, the knee crutches being well raised, the knees are placed in the crutches and the table is elevated to the point of most convenience for the operator. The back of the table is then elevated to the point of most comfort for the patient, and the abdominal electrode placed in position and connected to the machine. The perineal electrode is a round flat disc two inches in diameter. This is placed in position on the previously soaped perineum over the prostate, the center of the disc being placed over the most tender point.

To direct the heat downward the patient may be made to lie down upon the inactive electrode and in a few cases it may be desirable to use a belt inactive electrode. This latter is easily made of thin sheet lead, three inches wide and of sufficient length to girdle the abdomen.

The current is then turned on and gradually increased to the point of tolerance, or the bulb of a thermometer may be slipped in between the perineal electrode and the skin surface. A temperature of 110 degrees Fahrenheit is sufficient and in many cases will be as much as the patient will stand. The time of treatment varies from thirty minutes to one hour, forty-five minutes being the average. The current is decreased gradually at the end of the treatment. There may be some discomfort after the first one or two treatments, this I believe being due to a mixed infection in which other organisms may be stimulated by the increased heat. It is, however, of no moment, and is rather mild. The use of rectal prostatic applicators in this type of case seems illogical on account of the pain of introduction of the applicator.

The following cases in which diathermy has been used indicates the average of what one may expect in its use:

Case 1. A. P., age 33, office worker. Under treatment for chronic gonococcus infection, and developed a left gonococcic epididymitis. The patient had been given the usual treatment of rest in bed, ice-bags and ointments;

after a week had elapsed, the patient was allowed up and the ointment treatment continued for another three weeks. He was then referred to me for diathermy. There was some pain and marked swelling. Patient was given one treatment of fifty-five minutes. He left the next day on an extended automobile tour and was not seen for six weeks, when the swelling and pain had completely disappeared.

Case 2. E. R. H., age 27, expressman. Patient first seen with a marked prostatitis; after the second massage he developed a right side epididymitis. After a fifty-five minute application of diathermy he was relieved of all pain and with the help of a jock-strap remained at work. After the third treatment the swelling had disappeared.

Case 3. R. L. S., age 25, truck driver. Patient first seen with a left epididymitis of nine days' duration. Diathermy was used fifty-five minutes, after which pain was markedly diminished and some reduction was noted in the swelling. Patient was given a jock-strap to wear, and two additional treatments were given on successive days; on the fourth day pain and swelling had disappeared from the affected part.

The above results are typical of a number of cases of epididymitis treated. In no case so far has it been necessary to give more than four treatments, and cases numbers 2 and 3—hard working men—show what results may be expected from patients doing hard work and kept on their feet during the treatment.

The following cases of prostatitis are typical of the results that may be obtained from diathermy in those where pain is so marked that prostatic massage is impossible, and where, heretofore, reliance had to be placed upon hot rectal irrigations and opium suppositories to allay the pain and reduce inflammation.

Case 1. P. K., age 25, bookkeeper. Patient had been under treatment by a general practitioner for over three weeks and, in spite of the treatment received, developed a prostatitis which rapidly grew worse. At the time this patient was referred, pain was continuous, with urgent urinary symptoms and a frequency of about every thirty minutes day and night. Patient was given a diathermy treatment with the perineal electrode registering 110° Fahrenheit for one hour. Patient experienced

considerable relief, and at the fourth treatment pain and urgency were markedly diminished and the frequency diminished to three hours. At this time massage and irrigations were instituted without difficulty.

Case 2. H. D., age 34, salesman. Patient referred by physician for diathermy on account of the severity of the prostatic symptoms. Massage and other treatments were discontinued on account of extreme pain. Rectal irrigations of hot solutions were of little value. This patient was given four treatments on successive days, when he was returned to the physician for regular treatment.

The latter case is of interest since this patient had mild reactions after the first two treatments. The duration of the prostatitis in this case was over months. The physician who referred this case was practically sure of a mixed infection, and it is to this that I ascribe the reaction.

Other complications that are best handled by diathermy are lymphangitis, funiculitis, and venereal warts complicating gonorrhoea. The first two may be handled by disc electrodes placed at the extremities of the affected areas, and the current applied as in the treatment of epididymitis. In the case of venereal warts, any sort of inactive electrode may be used, the active electrode consisting of a needle which is plunged into the wart. This latter requires the use of an anesthetic, and novocain, or tutocain, in one per cent strength serves admirably.

In conclusion, I would state again that diathermy is the method of choice in the treatment of the above mentioned conditions, and its use will increase as its value becomes more generally known by the profession.

1422 Massachusetts Avenue.

STERILITY IN THE FEMALE: ITS ETIOLOGY AND TREATMENT.*

By ARTHUR S. BRINKLEY, M. D., Richmond, Va.

Statistics show that about ten per cent of marriages are without offspring, and the proper impression is, especially among laymen, that sterility is nearly always due to some defect or disorder in the genital organs of the woman. As a matter of fact the woman receives almost altogether the blame for the inability to produce offspring. In many cases

*Read at a meeting of the Southside Virginia Medical Association, at Emporia, June 14, 1927.

the defect is with the woman, but in many cases this blame is placed unjustly. If we exclude from the definition of sterility those cases in which the failure to produce offspring is due to early abortions, or prevention of conception, then sterility is in a large proportion of the cases due to the husband. Gross found the male directly in fault in sixteen per cent of the cases of sterility, and DeSinty in twenty-five per cent. In that large class of cases in which the immediate cause of the sterility in gonorrheal inflammation involving the tubes and ovaries, the primary cause usually lies with the husband, and on him must rest the blame for a childless home.

In order to assist in determining the exact cause of sterility in the various cases, it is well to consider what is necessary that a normal pregnancy may take place. It is necessary ordinarily (a) that a healthy spermatozoa be deposited in the vagina, (b) that the spermatozoa remain healthy and penetrate into the uterine cavity and into the Fallopian tubes. (c) that a healthy ovum be formed in the ovary, (d) that the ovum finds its way into the Fallopian tube where it can be fertilized by a spermatozoa, (e) that fertilized ovum pass into the uterus, and (f) that it find an endometrium suitable for its implantation and development.

It is not always absolutely necessary to have all the foregoing conditions present for conception to take place. Several cases have been reported with labor at term in patients where both Fallopian tubes and presumably both the ovaries were removed but, of course, some ovarian tissue was left. Quite often both tubes are removed and still the openings in some cases, without doubt, reopen and permit the ovum to pass. Fritsche ligated both Fallopian tubes with silk in the middle and still pregnancy followed three years later. Ashton reported the occurrence of pregnancy in the cervix following the removal of the body of the uterus for fibromyomata, showing that even the body of the uterus was not absolutely essential to pregnancy. Again, pregnancy has occurred in cases where penetration of the male organ into the vagina was impossible, proving that the spermatozoa may pass from the external genitals up to the uterus. One of my colleagues told me of a case that came under his observation several years ago. The patient stated that she had missed three

periods but she had never had successful intercourse with her husband. Upon examination an unruptured hymen was found which was markedly thickened and with a crescent shaped opening which would barely admit the tip of the little finger. The hymen was excised under local anesthesia and on bimanual examination, she appeared to be between three or four months' pregnant. She went to term. These are exceptional cases and usually each of the conditions mentioned is a distinct bar to pregnancy.

The husband proven to be virile, sterility may be due to the following causes: Some condition interfering with coitus, such as imperforated hymen, organic stenosis of the vaginal orifice caused by hyperesthesia usually due to vulvitis or vaginitis, simple inflamed abrasions about the vulva, venereal sores, gonorrheal inflammation, non-specific forms of inflammation of vulva, vagina or cervix, inflammation of the uterus (acute or sub-acute), inflammatory lesions of adnexa, retrodisplacement of uterus, bladder or rectal diseases.

LACERATIONS OF PELVIC FLOOR: When there has been marked laceration, the vagina may be so relaxed and patulous that the semen is not retained in contact with the cervix long enough for the spermatozoa to pass up into the uterine cavity.

Vaginitis or profuse discharge in the vagina may interfere chemically with the vitality of the spermatozoa or mechanically with their progress to or entrance into the cervix uteri. In either case the chance of pregnancy is diminished.

SOME OBSTRUCTION IN THE CERVICAL CANAL: Stenosis of the external os. This may be found in the form of the congenital "pin hole" os or it may be due to scar tissue resulting from former injuries. Stenosis at the internal os may be due to scar tissue, but it is more frequently caused by a sharp anteflexion of the cervix. It is often combined with a long pointed cervix and the "pin hole" os already mentioned. This combination is a frequent cause of sterility in women who have never been pregnant, and it is usually accompanied with dysmenorrhea. There may be in the cervical canal an excessive discharge or secretion which interferes with the spermatozoa on their journey upward.

Kurzrok and Miller, of the Columbia University College of Physicians and Surgeons,

New York, in an article entitled, "Biochemical Studies of Human Semen and the Mucin of the Cervix Uteri," appearing in the April, 1927, issue of *Experimental Biology and Medicine*, and which was abstracted in the *Journal of the A. M. A.*, May 28, 1927, pointed out that the plug of mucus filling the cervical canal and the external os is very viscous and adhesive, and when pulled away from the cervix it forms a slimy string which is broken with difficulty. In cases that do not present pelvic pathologic changes the mucus is semi-transparent; when there is a lesion such as an infection, laceration eversion or erosion, the cervical mucus tends to become mucopurulent in character and more adhesive. The mucus plug consists largely of a mucin and water. It presents, unless altered, a considerable barrier to the passage of spermatozoa. According to their statement, semen exerts a highly specific lytic action on the mucin of the cervix. The solvent effects appear to be enzymic in character.

The substance responsible for this action is thermolabile, as enzymes are; and it does not depend on the presence of the spermatozoa. Tests made with mucus from a patient with a leucorrhoeal discharge due to a lacerated cervix, and from one with acute gonorrhoea, indicated that the digesting action of normal semen is markedly diminished or stopped by the presence of pus in the mucus. They believe that the lytic substance of the semen may be an important factor in the passage of spermatozoa up the genital tract, and that its absence may be an etiologic factor in some cases of sterility in which no explanation has heretofore been offered.

It has also been shown recently that acidity of the normally alkaline uterine mucus quickly destroys the spermatozoa and thus may be the cause of sterility.

SOME DISPLACEMENT OF THE UTERUS: Retro-displacement of the uterus may throw the cervix so far forward that the spermatozoa do not readily enter it. Sharp antelexion may also throw the cervical opening too far forward. Prolapse of the uterus may interfere mechanically with coitus or with the passage of the spermatozoa to the interior of the uterus.

SOME ABNORMAL CONDITION WITHIN THE UTERINE CAVITY, which interferes with the passage of the spermatozoa to the tubes or which fails to furnish a proper place for the

implantation and nourishment of the fertilized ovum (a) Hyperplasia of endometrium, (b) infected endometritis, (c) tuberculosis of the endometrium, (d) malignant disease (carcinoma or sarcoma), (e) fibromyoma.

SOME AFFECTION OF THE FALLOPIAN TUBES, which interferes with the entrance of the ovum into the tube or with the passage of the fertilized ovum from the tube into the uterus. Inflammation of the tube is the most frequent cause of sterility from tubal disturbance. This may be very slight, not enough to produce symptoms or physical signs, but just enough to cause occlusion of one or both ends of the tube. It may vary all the way from this mild form to severe inflammation and disorganization of the tube with extensive exudate, adhesions and abscess formation, salpingitis, coming on after the first birth. Miscarriage because of inflammation during the puerperium or because of gonorrhoeal infection brought by the husband, who was untrue to his wife during her confinement, is a prolific source of the so-called "one child sterility."

TUBERCULOSIS OF THE TUBES AND ADJACENT STRUCTURES: A tumor of the tube or in the vicinity of the tubes, interfering with their functions. Malformation of the tubes may consist of atresia of one or both ends of the tubes or in blind passages and diverticulum into which the ovum may wander and lodge, or there may be abnormal openings in the wall of the tube through which the ovum may pass out into the peritoneal cavity and be lost.

SOME AFFECTION OF THE OVARIES, that interferes with their function to such an extent that healthy ova are not formed or not discharged in such a way that they pass into the Fallopian tubes. Inflammation of the ovary may be present in some of its various forms, infected oophoritis, simple oophoritis, cystic ovary, cirrhotic ovary, or an ovary covered with exudate and adhesions, tuberculosis of the ovaries and vicinity, tumors of the ovary, displacement of the ovary (this may be so marked that the ova, instead of passing into the Fallopian tubes, where it would fertilize, passes into the peritoneal cavity and perishes), thickened ovarian cortex, where the Graafian follicles are unable to break through.

CERTAIN OPERATIONS: For example, re-

moval of the uterus, or the Fallopian tubes or both ovaries.

DOUCHES which may interfere chemically or mechanically with the process of impregnation.

THE GENERAL HEALTH MAY BE SO POOR that all the organs are in a too weakened condition to properly function—the genital organs among them. This is seen in some cases of marked anemia, emaciation and general depression. On the other hand, it is present at times in patients that are inclined to stoutness. It has happened that sterility came on when a patient accumulated fat and promptly disappeared on reduction to normal weight.

DEFECTIVE DIET: Reynolds and Macomber, of Boston, subjected rats to three types of diet as follows:

1. Low in fat soluble vitamins;
2. Low in calcium;
3. Low in proteins.

These deficiencies were chosen as being those which are most often present in persons belonging to the well-fed classes in the United States. To them they added a fourth diet which was deficient in both calcium and proteids. This diet gives an approximate representation of the most important deficiencies in the war and post-war diets from which portions of Europe have been and still are suffering and is therefore of interest at the moment.

These diets reduced the mating fertilities of their rats from the normal 65 per cent to 55.31 per cent and 14 per cent, respectively. It delayed the appearance of fertility in rats raised on these diets and lowered its degree. These results were produced by a mere decrease in the percentage of the deficient elements, not by its absence, and without any other change in the life conditions of the rats.

Their conclusions are that many individual infertilities are functional rather than due to anatomic or pathologic causes; that very moderate decrease of fertility in both individuals may produce a completely infertile mating; and that two rats that are infertile to each other may both be fertile to other individuals, not because of obscure incompatibilities, but merely because of a decreased percentage of fertility in each.

Disturbed endocrine gland function, such as thyroid and pituitary gland insufficiency before or at the time of puberty, may cause the

genital organs to remain infertile, or, even after they have functioned normally, diseases of these structures may cause retrogression in the genitals and subsequent cessation of menstruation resulting in sterility.

TREATMENT.

The treatment will be discussed in the following order: Sterility from difficult coitus. If there is some malformation about the vaginal entrance, such as imperforated hymen, thick hymen, septum in the vagina, or organic stenosis of the vagina, the obstruction must be removed by the necessary operative measures. If there are ulcers, tender areas, or hyperesthesia, the following treatment may be employed; abstinence from sexual intercourse for one to three weeks, hot vaginal douches, laxative as needed (very often chronic constipation increases the congestion and irritability of the structures), some sedative ointment, such as chloretone 10 per cent, applied two or three times daily, especially just before intercourse is attempted, and bromides if there is much nervous irritability or apprehension. If the vaginal opening is too small or there is a spasmodic condition, such as vaginismus, gradual stretching without anesthesia or thorough stretching under anesthesia and packing the vagina to hold in this position until the tissues are completely relaxed may relieve this condition. If this fails, division of the constricting structures is advisable. Sterility due to relaxed vagina from old complete tears where the semen is not retained in the vagina long enough to enter the uterus should be corrected by proper repair of the pelvic floor. Profuse vaginal discharge, either specific or non-specific, should be cleared up with douches or local applications of the silver salts, if the discharge is due to chronic endocervicitis. If this treatment does not remedy the condition, cauterization or amputation of the cervix is advised. The discharge may convert the normal alkaline vaginal secretions into a strongly acid media which will kill the spermatozoa quickly. Alkaline douches and constitutional treatment should be employed.

Obstruction in the cervical canal, if due to marked antelexion or a congenital stenosis of the external or internal os, should be treated by dilatation with or without anesthesia. Dilatation should be followed by the introduction

of a stem pessary to be worn from four to six weeks and repeated in three or four months, if necessary.

I can recall two cases treated by this method with gratifying results. Both were thoroughly dilated under ether anesthesia and a large sized Wylie stem pessary inserted and worn for six weeks. One became pregnant the second month after the pessary was removed. This case had been married three years. The other one, who had been married four years, became pregnant six months after removal of the pessary. Dilatation after each menstrual flow; just after menstruation is presumably the most favorable time for impregnation and, if the canal is dilated at this period, it will remain somewhat dilated for a week or so. In cases with a long, pointed cervix and acutely ante flexed uterus amputation is suggested.

Retrodisplacement should be corrected by suspension of the uterus, preferably by the operation devised by A. M. Willis, of Richmond. If the retrodisplacement is accompanied with a long pointed cervix, which lies forward, a partial amputation should be done at the same time so the cervical canal will be at a right angle with the vagina and the cervix lies well back in the posterior fornix.

Abnormal conditions within the uterine cavity, such as endometritis, either specific or hyperplastic forms, should be treated with applications of antiseptic medical agents, radium or curettage. Malignant tumors and fibromyomata should be removed by proper surgical procedure.

Some obstruction or disease of the Fallopian tubes which prevents impregnation of the ovum by the spermatozoa. Dr. C. G. Child, of New York City, has done more real work for the salvage of these apparently hopeless cases of sterility due to adnexal diseases than any other man I know of in this country and his report of operative cures appearing in the *American Journal of Obstetrics and Gynecology*, December, 1920, is a shining example of what can be accomplished in cases heretofore thought to be hopeless by the vast majority of surgeons and gynecologists. In his series of eleven cases of operative cures he reports three cases which undoubtedly had a previous gonorrheal infection of the adnexa with periods of sterility ranging from two and one-half to eight years and yet all three were

delivered of normal, living babies in periods ranging from twelve to twenty-two months after operation. This report should certainly be an incentive for all of us to be more conservative in dealing with gonorrheal infection in the uterus and adnexa, more especially in women who have not been blessed with offspring. Occlusion of the tubes in any number of cases following non-specific, and even in some specific cases as shown by Dr. Child, may be cured of sterility by probing the tubes to the uterine cavity. In other cases where disintegration has been more pronounced, it is necessary to resect and form a new fimbriated extremity by splitting the tube on its superior surface for one-third of an inch and tacking the free edges to the under surface of the tube with fine chromic or tanned catgut. For tuberculosis of the tubes, if slight, probe the tubes and handle with dry gauze to get an active hyperemia. If the tubes are badly involved, resect and construct new fimbriated extremity as just described. Malformations, such as atresia at one or both ends, should be gently dilated with a probe and a small piece of kangaroo tendon left in to keep the tube patent for some time. Tubes showing sacculations and diverticula should be resected up to within one or two inches of the uterus and new fimbriae constructed.

Affections of the ovaries should receive careful attention, adhesions should be freed, cysts and tumors removed. Very often the cortex is so thick that it is impossible for the Graafian follicles to rupture through. Child reports one such case in his series. Cortical stripping should be done on these ovaries. Quite frequently the ovaries are so prolapsed in the cul-de-sac that the ovum perishes in the peritoneal cavity before it reaches the tube. The ovarian ligaments should be shortened so as to bring the ovary up in its proper position.

Sterility due to certain operations, such as hysterectomy, removal of tubes and ovaries, calls for more conservative surgery during the child-bearing period. With a constantly increasing rate of sterility among our native born, it behooves us as surgeons to weigh the case carefully and conscientiously before removing the last vestige of hope from these childless wives.

If the patient has been accustomed to taking antiseptic douches, either for leucorrhea

or cleansing purposes, she should be directed to stop them. In case a douche is necessary it should be saline and not used for eighteen hours after intercourse.

It has been definitely proven that patients suffering from anemia and general emaciation are very prone to sterility. The treatment in this instance is to find the cause of this general debility and correct that. It is my opinion that sterility in obese women is attributable probably to the same cause as the obesity, namely, some endocrine disturbance. In cases where the sexual organs are undeveloped and menstrual function is not established, it would seem advisable to treat them cautiously with extracts of the thyroid or pituitary glands.

In cases where no organic trouble can be demonstrated in either the husband or the wife, certainly a very careful investigation of the diet should be made and if it is found that either or both have been on a diet that is low in fat, soluble vitamins, calcium or protein, a well balanced diet should be prescribed at once.

In conclusion, I wish to make a plea for more conservative surgery in dealing with the generative organs of the female. Our mission in life should be constructive, not destructive. Conservation of the race is of vital interest to society, and the question of sterility should receive conscientious and careful consideration by practitioners of our art.

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Medical Arts Building.

THE PHYSICIAN AND THE NEWER SOCIAL HYGIENE.*

By THOMAS W. GALLOWAY, Ph.D., New York, N. Y.

When the term social hygiene is used, the average physician assumes that reference is to the prevention and cure of the venereal diseases. If he has kept up with the work of psychopathology he may include, in his definition of the subject, the task of meeting or preventing the unfortunate emotional and nervous effects of the irrational repressions and expressions of sex. Of course these items belong to the subject; but it is none the less true that all the vital social problems of sex health will remain when our scientists have found ways completely to control the venereal diseases.

Social hygiene in the American usage is narrowed somewhat from its European meaning. Here it applies not to all the phases of health which are of a social or collective nature. It is confined rather to the health aspects of the two organic functions which are basically social in their origin and nature,—the functions of reproduction and sex. Social organization and the spirit which makes association endurable and enduring, whether among animals or men, arose directly from the immediate and the remoter biological influence of the attractions of mates and the bonds between parents and offspring.

All other influences tending to bring and hold animals together are of distinctly secondary importance. The co-operative impulses, sympathies, mutual aid, services, devotions and sacrifices intrinsic in any genuine society did not arise out of the competitions, antagonisms, masteries, exploitations and fears engendered in the struggle for existence between species or among the individuals of a given species. Social hygiene means then the discovery and utilization of those elements of character and behavior which bring the maximum of abounding life, beauty, happiness, culture and progress to the individual and to his group by way of these two family and society-building functions of reproduction and sex.

The course of development of this positive and constructive interpretation of social hygiene, out of that treatment of it which emphasizes perversion and disease, is exactly parallel to the growth of all other phases of hygiene. The conception of physical hygiene arose only gradually from an original and ex-

The right angle from which to approach a difficult proposition is the *try-angle*.

—(Selected).

*Abstract of address before the Medical Society of the District of Columbia, Washington, April 27, 1927.

clusive attention to the cure of bodily disease, developing presently into efforts to anticipate and prevent specific diseases. Later still it grew into the definite education in positive appreciation of, and regimens for, the increase of health and wholesome living.

Similarly, mental hygiene started by recognizing and seeking to relieve the more acute forms of mental derangement. Later it has passed into the phase of anticipating and preventing these psychoses by trying to meet effectively their earliest manifestations. It is now far along in the task of cultivating constructively the roots of mental health by early analyses of the mental make-up and progress during childhood and by stimulating a proportional development of emotions and their appropriate expression. The whole modern emphasis tends towards understanding the child from the beginning and toward giving him the best possible chance to get and to maintain the fairest balance of mental processes open to him. These advances in our conception of health make all hygiene more and more a matter of education and training, beginning with life itself and following the individual as long as science gives the expert any data not in the complete possession of all of us.

Formulated in these terms, the problem of social hygiene is in its personal aspects a problem of education,—full and unexpurgated character education—in which the most powerful group of influences which go to determine character and happiness are included just at their actual value,—no more, no less. In this education the sex motives as they arise are used to build up rather than to degrade the other elements in personal character and social relations; and all the other factors in normal character-building are equally used to bring the sex impulses and sex expressions into character in a soundly rational way.

From the immediate social point of view, the goal of sex education is the improvement and conservation of the human family,—which with all its faults and failures is at once the most *social* and the most *successful* of our institutions. It is motivated and built upon sex and reproduction. Upon this institution, with any improvements we can bring to it, depends largely the character of present society, and of all the new individuals who are to determine the society of the future. Its health and improvement are to be had only by the better understanding of its nature and

limitations and the fuller preparation of young people, ahead of time, to meet their privileges and opportunities, as more efficient mates and parents.

Has the modern physician any role in this enterprise of social health, growing out of his professional closeness to some of the underlying facts, and out of his position of leadership in our social structure? The responsibility for this sort of thing rests on all community agencies. Opportunity and the desirability of forwarding the whole, sane, richness of life are the measure of one's duty.

What then are the special opportunities of the physician who has social sense and has prepared himself to fit this aspect of hygiene effectively into his program?

1. He has of course a leading position in every community movement to limit or eliminate the venereal diseases and the conditions—whether of ignorance or lax public opinion—which contribute to the incidence and spread of these diseases.

2. Similarly his support means much in every effort to educate public opinion as to the value of a character-education of youth which will give them at least a fair chance to use their sex lives constructively and healthfully.

3. Specifically, all physicians who have any intimate professional relations with parents in the home may incidentally and tactfully aid many open-minded parents to fit themselves to meet intelligently various critical points in the sexual and emotional life of their children. To do this acceptably the physician must of course know something of the significance of age and development in the education of children, of mental hygiene, and of the relation of both to sex education.

4. Such a physician, having entrance into the family is often in a position to help the children directly,—whether in understanding their own sexual development and its influence upon the rest of their life, or in appreciating their own family and home and of co-operating fully therein. To enable a boy to sense the value to him of a mother and to meet her half way, rationally rather than sentimentally, is just as really social hygiene education as to aid in solving the problem of masturbation. And on the whole it is more important.

5. The fitted physician is in a peculiarly advantageous position to aid adolescents. As few persons can, he may put some science at their command,—and without preachments.

Four items pertinent to the adolescent age must suffice as illustrations.

First, such an adviser can explain to the boy and girl *why* it is that they are feeling for independence of their parents; how natural and universal and necessary it is that they should become independent persons; that there are fine and considerate ways to do this, and cruel, brutal ways; that it can be done, if both parents and child are willing, so that the boy or girl will come into his own freedom and yet will want to come back to his parents for sympathy and advice. In this enterprise parents should be made to see their part, and how best to perform it.

Secondly, various rationalizations about sex float down from older to younger boys and girls. There are many of these,—as: That sex intercourse is necessary for perfect sexual development of either men or women; that men are by nature entitled to a sex freedom that women should not have; that illicit sex relations are only an indiscretion and not a very important one at that; that a period of sexual indulgence makes a man a more understanding husband. None of these has any convincing scientific support; and they all run counter to a reasonable interpretation of our human social values and culture. Their acceptance does a tremendous part in undermining all those rational controls which make for high and humane social relations between the sexes.

Thirdly, the physician is in a very favorable situation to assist his boy and girl patients understand the normal homosexual preferences of early adolescence and the desirability of making the passage into the heterosexual attitude—the admiration for the opposite sex—in a normal and timely fashion. It is unfortunate if this transition is not made. It is equally unfortunate if it is made in a way that degrades the relation which should exist between the sexes. This understanding and acceptance of the other sex does not demand anything approaching incontinence or the exploitation of the other sex at its weaker points. It holds rather with a mutual chivalry which makes each sex find its highest satisfactions in protecting and perfecting the other, as well as itself. These statements are not intended to imply that such mutual consideration can be made universal at our present stage of culture; but rather that such standards are often enough attained to show that they are both

possible through education and productive of highest happiness.

Fourthly, young men and women of marriageable age need to know authoritatively numerous facts about the sex nature both of themselves and the other sex, and in such spirit as will enable them to make intelligently and happily the sexual adjustments necessary to a successful married life. The physician owes this service to the young people whose confidence he has won.

Considerations like these are causing socially minded people to expect of physicians and other health workers a preparation sufficient to fit them to meet the elementary needs of human beings, not alone in physical hygiene but in mental and social hygiene as well; and to demand of medical and other kindred schools such training as will support this advanced form of health service. In proportion as state of mind and character are to be thought of in terms of health rather than mystically, it is intolerable that schools dealing scientifically with prevention of disease should rest content with an antiquated conception of health as confined to the physical body. Mental and social hygiene, which are profoundly interrelated, must find an increasing place in every medical school. Alumni owe it to the world to influence their schools in this direction.

370 Seventh Avenue.

Correspondence

The Life of Lord Lister.

WASHINGTON, D. C.,
FEBRUARY 8, 1928.

TO THE EDITOR:

I have just returned from my trip to Europe and find that the Lister paper has been published in the MONTHLY, but regret that through an oversight, the references were not given.

The data contained in this paper was obtained from the following books on Lister's life:

Godlee, Sir Rickman John: "Lord Lister," Macmillan & Co., Ltd., London, 1918.

Cheyne, Sir William Watson: "Lister and His Achievements," Longmans, Green & Co., London, 1925.

Wrench, G. T.: "Lord Lister," T. Fisher, Unwin, London, 1913.

Dukes, Cuthbert: "Lord Lister," Leonard Parsons, London, 1924.

Lister, Sir Joseph: Collected Papers, Vols. I and II, 1909, Henry Frowde, Oxford Press, and Hodder and Stoughton, London.

The two letters quoted were taken from Sir Rickman John Godlee's "Lord Lister," and my paper is merely a brief summary, giving the important facts of Lister's life.

Regretting very much that due credit was not given to the authors of the several books from which I obtained most of my information, and hoping that you will correct the error by publishing a note of it in the next issue of the JOURNAL,* I am,

Very truly yours,

EDMUND HORGAN,

Miscellaneous

The Use of the Physician in School Health Programs.

In the November number of the *Child Health Bulletin* published by The American Child Health Association an article entitled "The Use of the Physician in School Health Programs" was printed. It was written by Harold H. Mitchell, M. D., Medical Director of the School Health Study of that organization. In the first paragraph of his article Dr. Mitchell makes the following startling statement: "Each year the physicians have seen thousands of children, fully clothed. Each child has come without a history of past illness, or of present complaint of behavior. Usually from one to four minutes, very rarely ten minutes, have been allowed for the consideration of all the problems of health and disease of each child and for the recording of his findings. The results have been unsatisfactory to both the physicians and the educators." He does not blame the physicians but rather the system, for this incompetent method.

He also sees in these examinations a definite danger. "We must also consider that education as to the value of periodic health examinations is part of the school health program. We believe in the movement in this country to promote periodic health examinations. Must we jeopardize this movement by unfortunate early attitudes implanted in our

school children? A 'health examination' is not represented by such procedure as we now exhibit in our public schools".

Furthermore, he feels that the result of these yearly examinations shows little of value. "Many cities report the same large proportion of corrections year after year with no apparent gain or improvement of conditions. The difficulty obviously is a lack of satisfactory bookkeeping methods which adequately measure results, a condition intolerable to business standards".

If such conditions exist in city schools, even worse are those in the rural schools where fewer physicians are available and greater distances are to be covered. He quotes from an article written by Dr. Mary E. Brydon, Director of the Bureau of Child Health, Virginia State Department of Health, published in the *Journal of the American Medical Association*, September 18, 1926, saying: "In Virginia this problem has been faced and a decision made that 'Except in the case of the very poor, the duty of making these examinations should not be the function of a public paid health official; it is the province of the family physician'."

The conclusion of Dr. Mitchell's article reads as follows:

"To recapitulate, health examinations in the schools are generally unsatisfactory:

"First, because they are inadequately conducted under hurried and inconvenient conditions with too little past and present history available.

"Second, because small salaries and the demand for large numbers of examinations combine to discourage careful work.

"Third, because judgments of individual examiners too often differ, due to the lack of methods of precision as to the conditions they find in children.

"Fourth, because these inadequate examinations implant wrong ideas of what constitutes a real health examination, and the benefits to be derived from periodic health examinations.

"Fifth, because school records,—of examinations, evidences of improvement, correction of defects,—are generally too confused and statistically unsound to permit of any intelligent interpretation of results.

"Frankly, we are faced with a dilemma. There is not sufficient confidence that adequate returns can come from more physicians and more time on the examinations to expect a solution of our problem by insisting on larger ap-

*This paper by Dr. Horgan appeared in the January issue of the *Monthly*.

propriations for the health examinations. We cannot limit the examinations to the few children that the physicians can give time to examine thoroughly. We must apply our scheme to the whole school population. Of course, we may give more time to a few children screened out as in need of special attention. But the method of screening out the abnormal from the normal, the handicapped from the child free 'to achieve the limit of his endowed capacity for well being' should not be left to the hazards of opinion of persons with less than the best judgment available. Our problem is further complicated by the question of whether schools should attempt to supply the health examination service that we have set forth as our ideal in modern hygiene and preventive medicine. If all the needs of periodic health examinations for children could be met through the public schools, we should not leave much preventive medicine to be practiced by the private physician. On the other hand, the writer believes that preventive pediatrics and periodic health examinations should be given more attention in medical schools and every encouragement should be given to the private practitioner who will practice preventive medicine. Shall the school physician supplant the private practitioner in the preventive field?"

The Virginia Department of Health desires to bring to the forefront the use of the family physician in preventive medicine especially, because it is in the rural sections that most of its work is done. Part of the program of the Bureau of Child Health has for its aim the medical examination of the pre-school child who is to enter school in the next session: this examination to be made by the family physician in his own office for whatever fee he may deem proper to charge. To promote this plan, many of the Division Superintendents of Schools are writing their patrons requesting that a medical examination with whatever corrections are indicated be made before the child is admitted to school. Where there are county public health nurses, many of them are making visits to the parents of pre-school children and urging them to go to their own physicians and have this examination made as soon as possible so as to be ready for school in the fall. These public health nurses also hold themselves in readiness to be at the doctor's office when the examinations are made to assist him in any way he may desire. The State furnishes standard forms for recording

the results of the examinations. The nurses help the parents to secure corrections whenever their help is requested.

The Department has for several years been working up to this plan by cooperating with the State Board of Education in having the teachers make a simple annual inspection of each pupil to find obvious physical defects with a view to having them corrected and thus promoting school progress. The teachers are trained to do this inspection by a special course of study. It is recognized that inspection by teachers is merely a temporary expedient to meet an emergency until the parents and the family physician assume the responsibility of the health of the school child.

Preventive medicine for the individual is surely the responsibility of the family physician and the sooner he assumes this responsibility the better for all concerned.

EMILY GARDNER, M. D.

Tularaemia.

Seasonal incidence of cases of tularaemia, according to the United States Public Health Service, is due to the seasonal variation of three sources of infection, tick bite, fly bite and the dressing of wild rabbits, but owing to the overlapping of these influences, cases have occurred in the United States in every month of the year. The great reservoir of infection and the greatest source of human infection from tularaemia is the wild rabbits, jack, cottontail and snowshoe varieties, but owing to the agencies of blood sucking insects common to rabbits and man, we find cases resulting from tick bite and fly bite.

Of the rabbits offered for sale in the Washington, D. C., market in the winters of 1923, 1924, and 1925, Dr. Edward Francis, of the Public Health Service, examined the livers of 1,000, and found nine, or slightly less than one per cent, infected with tularaemia. The liver and spleen of an infected rabbit are studded over the surface with small spots varying in size from that of a pinpoint to one-sixteenth inch in diameter. Of twenty-two cases of tularaemia in Washington, seventeen of the patients had dressed wild rabbits bought or sold in the market, four had dressed rabbits shot nearby, and one had dressed a rabbit which he had killed with a club.

Four hundred and twenty cases of tularaemia have been reported, of which seventeen have died. This places the mortality at about

four per cent. These figures embrace only the cases which have been reported to the Public Health Service, but considering the newness of the disease, they probably represent only a portion of the actual number of cases and deaths.

Cases have now been reported from Japan, from the District of Columbia and from thirty-seven states. The nine northeastern States, being the only significant portion of the United States in which cases have not been recognized.

As a rule when the infection has come from a rabbit some injury has been inflicted on the hand while dressing the rabbit, although a manifest injury is not necessary for infection to occur. Usually an ulcer develops at the site of infection accompanied by enlargement of the lymph glands which drain the ulcer. Fever is always present and continues for two or three weeks. The site of infection from tularaemia may be located on any part of the body other than the skin of the hands, if due to tick bite or fly bite. The diagnosis of tularaemia is confirmed by a blood test. One attack confers immunity in man. Rest in bed is the most important treatment. The enlarged lymph glands should be opened only after pus has definitely formed.

The infection has never been found in nature in domesticated rabbits raised in rabbitries.

No preventive vaccine or curative serum has yet been perfected, nor has any special drug been found effective against tularaemia.

Rabbit meat thoroughly cooked is harmless for food, and it has been found that a temperature of 56° Centigrade, or 133° Fahrenheit, kills the germ of tularaemia. The ordinary disinfectants are effective. Rubber gloves should be worn by those who dress wild rabbits. Immune persons should be employed to dress them where possible. Infected rabbits, kept frozen for thirty days, have been found to be free from infection. Market inspection of rabbits is impracticable, because only about ten per cent of the rabbits found in the market still have the liver in place.

Beware of the wild rabbit which the dog or cat has caught, or which a boy has killed with a club—it is probably a sick rabbit. The hunter should not shoot his rabbits at the point of his gun. Let him be a sportsman and shoot them on the run at seventy-five yards,

say, and the chances will be lessened that the rabbits he bags will be sick with tularaemia.

Bibliotheca Obstetrica

John Burton, M. D.

Burton (John) [1697-1771]. An essay towards a complete new system of midwifery, theoretical and practical. Together with the descriptions, causes, and methods of removing or relieving the disorders peculiar to pregnant and lying-in women and new-born infants. In 4 pts. xix (21), 391 pp., 12 l., 18 pl. 8°. London, J. Hodges, 1751.

For Biography, see Doran (Alban) Burton ("Dr. Slop"), his forceps and his foes, *J. Obst. & Gynec. Brit. Emp.* 23: 3 and 65, 1913.

This is the *five shillings* book that forms the basis for Sterne's great satire, and the illustration is that of the forceps that crushed Tristram's nose. Doran, who was one of the greatest authorities on the history of forceps, says that the forceps that Burton really used in his practice are preserved in the museum at York. He calls these the York forceps, and says that they are very much like the Dusée forceps. He does not think that the lobster-like forceps that Burton pictures in his book were ever used.

Burton finds fault with the leather covering of the blades of the forceps that was considered so necessary by even the great Smellie. He seems to have had an especial antipathy to Smellie and ridicules Smellie's pretense to learning. Elsewhere he accuses Smellie of copying only from Spachius and not from the authors he lists. A taste of Burton's style may be had from an extract from his preface. He says "Mauriceau is the first author worth reading, but now he is obsolete. Dr. Deventer, a Dutch physician, published his *Ars Obstetricandi* in 1700 and he is the next author worthy of notice. He is the first author that takes notice of the obliquity of the womb as being an obstacle to a speedy and safe delivery. La-Motte is the third author of note. After this time a number of books upon this subject were published, both in these and foreign dominions. Some of them being only cases in midwifery as Giffard's, while other people only published books or pamphlets, from no other motive than to let the world know there were

such persons in being; against whom other writers threw out their squibs for the same reason, the public, in the mean time, not reaping the least benefit by the contest."

Burton was born at Colchester, June 9, 1697, and was educated at Merchant Taylors

the opportunity and had him imprisoned on the charge of treason, and he remained in jail several months before the action of the local authorities was reviewed in London. Besides being a physician, Burton was an antiquary of note, and he made valuable contributions to the ecclesiastical history of Yorkshire.

M. P. R.

Proceedings of Societies

The Rockingham County Medical Society

Has held meetings each month during the winter. These meetings were all well attended by the physicians and a number of the nurses of the Rockingham Memorial Hospital. The meetings were held at the hospital. The Society has been addressed by the following prominent physicians from near-by places; Dr. Hugh H. Trout, of Roanoke, Va.; Drs. R. P. Bell, and M. J. Payne, of Staunton, Va.; Dr. L. A. Calkins, Professor of Obstetrics at the University of Virginia. Members of the society contributed to the meetings also. Dr. C. E. Conrad gave an excellent paper on the "Occurrence of Thymus in the Newborn," and Dr. H. G. Preston presented a paper discussing three rare eye conditions, at the meeting on February the 13th.

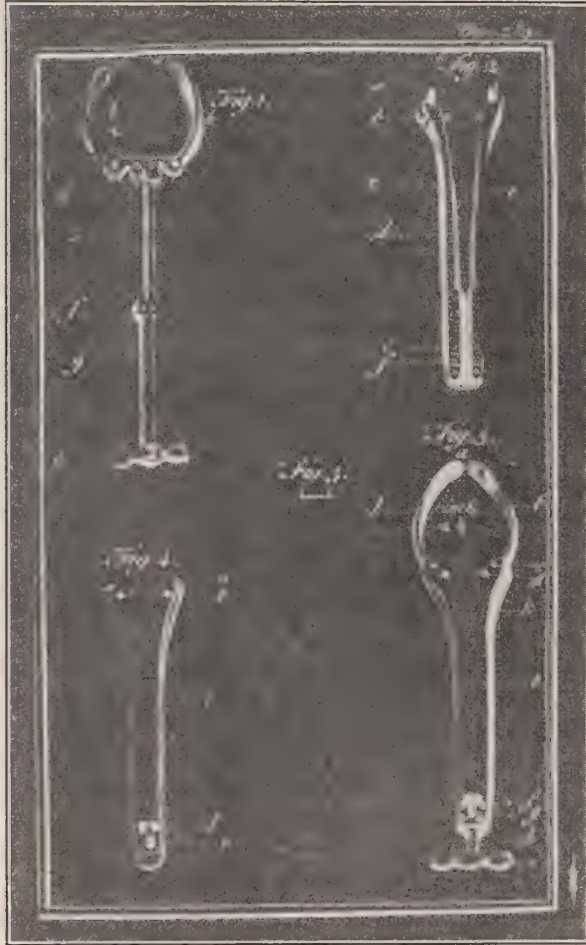
The Society is proud of its charter as a part of the State organization, and will endeavor to co-operate in every way with the parent society.

Dr. Noland M. Canter, Harrisonburg, is president, and Dr. Howard Armstrong, also of Harrisonburg, secretary-treasurer of this Society.

The Wise County Medical Society

Held its annual meeting in Norton, Va., February the 24th, in conjunction with the Norton Medical Society. After the election of officers, the meeting was turned over to the local society and the doctors furnished an interesting and instructive program. Mr. Wade Miles, Deputy Commissioner, read an excellent paper on "The Cooperation of the Attending Physician."

Officers elected for the ensuing year are: President, Dr. B. C. Henson, Roda; vice-president, Dr. G. B. Setzler, Norton; secretary, Dr. W. R. Culbertson, Norton. Dr. Culbertson succeeded Dr. C. B. Bowyer, of Stonegap, who



The Burton forceps.

and St. John's College, Cambridge, where he got his M. B. in 1733. Later he studied at Leyden, and took his M. D. at Rheims. The Dictionary of National Biography says of him that he was a good classical scholar and his reputation as an accoucheur was deservedly high. His imprisonment in 1745 is commonly taken as evidence that he was a Catholic and was interested in placing the Stuarts back upon the English throne. Doran however says that journey to the North at the time of the Young Pretender's invasion was a business trip, duly sanctioned by the authorities and that there was nothing treasonable in it. His enemies, however, led by Lawrence Sterne's uncle, seized

resigned after holding this office for some years.

The Post-Graduate Medical Society of Southern Virginia

Held its third regular meeting in Hopewell, Va., February 21st, under the presidency of Dr. S. E. Gunn, of that place. Papers were read by Drs. Meade Edmunds, W. C. Moomaw, W. B. McIlwaine, and J. T. N. McCastor, of Petersburg; Dr. J. M. Bailey, of Hopewell, and Dr. T. Latane Driscoll, of Richmond. Dr. W. C. Powell, Petersburg, is secretary-treasurer of the Society. This meeting was an excellent one and was attended by about thirty-five members.

The Augusta County Medical Association

Held its tri-monthly meeting in Staunton, February 1, under the presidency of Dr. J. Fairfax Fulton, of that city. After reporting of clinical cases, papers were read by Drs. C. P. Obenschain, of New Hope, and R. P. Bell, of Staunton. Upon adjournment of the scientific program, a subscription dinner was enjoyed by those in attendance. Dr. W. F. Hartman, Staunton, R. F. D., is secretary, and Dr. T. M. Parkins, of Staunton, treasurer of the Association.

The Lynchburg and Campbell County Medical Society

Held its regular meeting in Lynchburg, February the 6th, at which time the subject for discussion was "Influenza." Papers were read on this occasion by Drs. T. E. Rucker, Powell G. Dillard, T. E. Jones and E. L. Sutherland, all of Lynchburg. Dr. E. F. Younger and Dr. S. E. Oglesby, both of Lynchburg, are president and secretary, respectively.

The Norfolk County Medical Society

Gave the name of "Marine Hospital Night" to their meeting of March the 5th. At this meeting, papers were read by Surgeon E. M. Townsend and Assistant Surgeon B. J. Macauley, of Marine Hospital No. 82. Officers of this hospital are regular and interested attendants upon the meetings of this Society.

The Danville Academy of Medicine

Held its regular monthly meeting in that city, February the 14th, Dr. I. C. Harrison presiding. Dr. J. A. Hawkins is secretary. Papers were read by Dr. C. L. Bailey on

"Prolapse in Aged Women" and by Dr. C. T. Carter on "Reflex Disturbances of the Intestinal Tract." Both papers were freely discussed. It was voted that the Society should appoint a committee to consult with Dr. R. W. Garnett, Director of Public Welfare, on matters of interest to the members of the society. The president was empowered to appoint this committee.

The University of Virginia Medical Society,

Held its second meeting January 23, 1928, at the University of Virginia Hospital, Dr. Bray presiding.

Dr. J. H. Neff demonstrated a woman with bladder exstrophy. He had successfully transplanted the right ureter into the rectum and planned shortly to transplant the left. Discussion: Dr. Jordan concluded that the anomaly probably dated from the end of the second month of development.

Dr. Oscar Swineford discussed a recent case of paroxysmal hemoglobinuria in a syphilitic. After an extensive review, he outlined his experiments with the patient's blood, which were much in line with those of Donath and Landsteiner. In the discussion, Dr. Marshall referred to Ehrlich's "Horror autotoxicus." Dr. Jordan: "In the rapid regeneration of the erythrocytes, did you obtain evidence of activity of lymphocytes as blood formers?" Dr. Homer Smith: "I cannot agree with Dr. Swineford's views of there being a renal threshold for the elimination through the kidney only at points of injury. Moreover, I doubt if the accepted views as to hemolysis are as satisfactory as their acceptance indicates." Dr. D. C. Smith: "Where does the hemolysis occur? What relation has it to the normal removal of erythrocytes from the blood?" Dr. Swineford: "No evidence of lymphocyte activity as erythrocytes formed. Clear evidence that the kidneys actually were injured, as shown by casts and other urinary features. However, a definite threshold for hemoglobin based on ratio of free to total hemoglobin has apparently been shown. The relation of hemolysis to the normal spleen function, as described by Krumbhaar and others, suggests obvious further studies on the mechanism of hemolysis in paroxysmal hemoglobinuria, but Dr. D. C. Smith's question cannot be answered."

Dr. H. T. Marshall exhibited hearts and

aortas from two recent autopsies. An old syphilitic, with Charcot joints, etc., had an enlarged fibrous heart with thick aortic valves, indistinct evidence of aortitis, and moderate, non-distinctive arteriosclerosis. In the second case there was a sharply marked patch in aorta not involving aortic valves, with the sharp delimitations of syphilitic aortitis but markedly involved in atheroma and calcification as part of a diffuse arteriosclerosis, a condition infrequent in syphilitic aortitis. The patient had evidently survived syphilitic aortitis and eventually developed extensive arteriosclerosis. There was also a condition of extreme mitral stenosis, arteriosclerotic type.

Dr. Vincent Archer demonstrated a series of radiograms of syphilitic and normal hearts and aortas. Discussion: *Dr. Flippin*.

Dr. D. C. Smith read a paper giving an analysis of the cases in the University of Virginia Hospital, presenting cardiac or aortic syphilis. Discussion by *Dr. Edwin Wood* and *Dr. R. B. Bean*.

Dr. Carl C. Speidel outlined an extensive piece of experimental work upon blood formation in splenectomized salamanders, the evidence indicating that blood formation occurred in the circulating system and not at any fixed points. In this animal the spleen is the normal organ for erythrocyte formation, while the capsule of the liver is the point for the formation of the granular leucocytes. The animals were killed at intervals from one to seven months and gave evidence of active blood formation. The liver centers were not involved, while proliferative changes in the circulating blood were numerous. There was also some proliferation of reticular cells in kidneys and fat bodies.

Dr. H. E. Jordan, studying blood regeneration in splenectomized horned toads, found one showing curious changes on the surface of the liver attributed to reactions to a blood clot probably resulting from the earlier splenectomy. Active proliferation of the peritoneal liver capsule cells with phagocytosis was the striking feature. After several transfers from one phagocyte to another, the pigment finally reached the liver in the form of very minute granules. The details of the phagocytosis were illustrated by projection slides.

The next meeting of the Society will be held February the 6th.

The third meeting of the University of Virginia Medical Society was held February 6, 1928, at the Chemical Building, *Dr. Bray* presiding.

Dr. W. H. Goodwin presented a case of volvulus involving sixteen feet of intestine.

Dr. H. T. Marshall presented three recent autopsies with gas bacillus as a feature and discussed especially the pigmentation of gas bacillus infection. Discussion: *Dr. Calkins* and *Dr. Flippin*.

The principal paper of the evening, with numerous lantern slides, was by *Dr. Chas. H. Frazier*, of Philadelphia, upon pituitary diseases.

The next meeting will be Monday, February 20th, at 7:30, at the Chemical Laboratory, adjacent to University Hospital. All physicians, especially members of the Virginia medical profession, are invited to attend these meetings.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to *Mrs. E. F. Truitt*, Secretary and Treasurer, Cottage Toll Road, R. F. D., Norfolk, Va.

Program of the Auxiliary.

The Woman's Auxiliary to the American Medical Association has an official national program for Health Education. This program was accepted at the recent meeting of the National Executive Board in Chicago.

The County Auxiliaries in Virginia are earnestly urged to give this program their serious attention, because it must be clearly understood that the National program can only be suggestive.

The following considerations must be kept in mind by State Boards in planning State and County Auxiliary work:

"(1) Suggestions offered by the National Auxiliary to the State Auxiliaries can be only advisory, for the reason that a State Auxiliary should undertake only work which meets the approval of the State Medical Association, and a county auxiliary should undertake only

work which meets the approval of the county medical society.

"(2) The principal function of the Auxiliary is education of the public in health matters. But doctors' wives cannot educate others until they have first educated themselves.

"The first work therefore for the members of a state or county auxiliary should be self-education through reading and through study programs. The first year of every auxiliary's existence could profitably be devoted to education of its own members.

"(3) The best field for work is the women's clubs. Doctors' wives should be willing to accept offices and committee appointments in such organizations as the Federated Clubs and Parent-Teacher Associations, in order to carry on health educational work with their members, and, through them, to teach the general public."

National Program for Health Education

By MRS. GEORGE H. HOXIE, Chairman, Kansas City, Mo.

I. PUBLIC HYGIENE.

Fundamentals upon which Auxiliary work for improvement of public hygiene should be based:

(1) Every state, county and city is entitled to a scientific full-time health department (organized—not to treat the sick, but to prevent disease and promote health), adequately financed, free from political domination, and providing continuity of service to a trained personnel so long as work is efficient.

(2) The first and most fundamental job for lay organizations like the Auxiliary is to secure such scientific full-time health departments and adequate health protection, in their state, their county, their city or town.

(3) Where efficient, full-time, scientific health departments do not exist (and only about ten per cent of the rural districts of the United States have anything approaching adequate health protection), health activities must be initiated and carried on by volunteer unofficial agencies; but all such work should be so planned and administered as to serve as stepping-stones toward the full-time official health department.

(4) When the full-time official health department, with workers trained for public health work, has become an accomplished fact, lay organizations should support and co-oper-

ate with the official workers and should be *willing to take orders from them.*

(5) No health department, state, county or city, can do effective work without intelligent co-operation of the public. Such public co-operation depends upon wide-spread health education. Lay organizations can do this educational work, *and are needed for it.*

The Auxiliary can be one of the most valuable tools for an official health department to use in this work.

The Auxiliary can also, by its education of the public concerning the official health department's work and needs, be the means of gradually eliminating or preventing political interference with an efficiently working department, and thus insure to it uninterrupted public service.

(6) Most volunteer agencies do not yet realize the wastefulness of their individualistic efforts. One of the first things the Auxiliary should do is to work for this suggested change of attitude in other volunteer women's organizations.

Health officials know that it is not always the work which makes the greatest emotional appeal to the public which most needs to be done. Unfortunately most women do *not* know this. This is something the doctors' wives might well undertake to teach other women.

The National Auxiliary recommends, therefore, that each State Auxiliary undertake, under the direction and with the help of the public health committee of the State Medical Association, a study of the state health machinery and state health conditions, and that through its committees on education and public health it devise means of acquainting all the state board members with the result of the study, and that educational work for the county auxiliaries be based upon the conditions found.

In states where all is well and where time has developed good official health machinery and good health conditions, general knowledge of the fact will tend to prevent interruption of the excellent work, and will be a source of satisfaction to the women of the state.

In those states where there is much yet to be done, this investigation will indicate what sort of work needs doing first. For example:

(a) In those states which are not in the Birth Registration Area, the Auxiliaries

would, without doubt, wish to tackle, as their first job, the ninety per cent birth registration problem.

(b) In those states in which the state health department believes the "County Health Unit" to be the solution of the rural health problem, the county auxiliaries should be encouraged to take as their chief work such persistent and wide-spread education of the public as will gradually create a general demand for the full time county health department.

(c) In those states where the rural health work is directly done "long distance" by the state health department, the county auxiliaries, if willing to work, and work under the directions of the state health department, can carry on intensive local health education work which would be impossible for the state department without intelligent local co-operation.

To those auxiliaries which agree with these ideas the committee recommends the following outline of study:

- (1) Vital Statistics. Their value.
 - Compare the vital statistics of the state with those of other states.
 - Compare the vital statistics of the different counties of the state.
 - Compare the vital statistics of the cities with other cities in the state, and in the United States.
- (2) The State Health Department; its organization, and program:
 - (a) For general state work.
 - (b) For co-operating with the counties in improving county health conditions.
- (3) The County Health Unit as a solution of the rural health problem.

Community-Wide Conditions Which Affect Health

- (4) Milk:
 - Milk standards, why necessary, what milk standards your community needs.
 - How are these needs being met?
- (5) Housing:
 - Your community housing laws.
 - Housing conditions as they have developed under these laws and as they affect health.
 - Improvements needed.
- (6) General Sanitation and its relation to the death and morbidity rates.

Sewage disposal.

Garbage.

Water.

Flies.

Dust and street cleaning, etc.

II. PERSONAL HYGIENE.

The improvement of personal hygiene in any community is almost entirely a matter of education. Here again the Auxiliary members must first educate themselves before they can take a safe part in educating the public. The committee therefore recommends that the Auxiliary study programs shall include:

Health Promotion:

Prenatal care.

Child Welfare—infant and pre-school hygiene.

School hygiene.

Mental hygiene.

Social hygiene.

The advantage to the public of general compliance with health regulations.

The periodic health examination.

Control of communicable diseases.

The entire program should close with a survey of all the private agencies doing health work in the community, and a discussion of the possibility and desirability of centering the direction of all such work in a full-time, scientific health department, under which the private agencies, while still maintaining their identity, would work in complete co-operation.

Coffee Shop.

It is hoped that each member of the Woman's Auxiliary to the Medical Society of Virginia received a copy of the "*Woman's New Year Journal*," and it is earnestly desired that each member will pay her dues promptly, so that she may receive the next issue in April, as the mailing list is made from members who have paid dues.

The "*New Year Journal*" was financed and published by the Woman's Auxiliary to the State of Texas.

The April Journal will be given by the Pennsylvania Woman's Auxiliary, after which the Journal or Bulletin is uncertain.

The American Medical Association has asked the National Auxiliary to sponsor a "Coffee Shop," to be held at the time of the American Medical Association meeting, in Minneapolis, Minn., in June. The space for

this "Coffee Shop" has been donated in the auditorium, where all the scientific meetings of the American Medical Association will take place and which is eight blocks from headquarters hotel.

It is hoped that money enough can be made at this "Coffee Shop" to finance the Journal or Bulletin for another year. The chairman of this committee is Mrs. Allen Bunce, president-elect of the National Auxiliary. The actual work will be done by the Domestic Science Department of the Minneapolis College.

It has been suggested that each state send a food for which it is famed. On "Virginia Day" there will be Smithfield hams and peanuts. The County Auxiliaries in Virginia are asked to send a contribution for this fund to Mrs. E. F. Truitt, State Treasurer, to help make our day a success.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 30th, the following have been accepted:

Hermes—Groves Dairy Co.

Bacillus Acidophilus Milk—Hermes

Lederle Antitoxin Laboratories

Anterior Pituitary Desiccated—Lederle

Posterior Pituitary Desiccated—Lederle

Whole Pituitary Desiccated—Lederle.

Eli Lilly & Co.

Iletin (Insulin—Lilly) U-100, 10 c.c.

Liver Extract No. 343

H. K. Mulford Co.

Sterile Solution of Dextrose (d—Glucose) 50 c.c.

Double End Vial

Sharp & Dohme

Hexylresorcinol Solution S. T. 37

NEW AND NONOFFICIAL REMEDIES

Bacillus Acidophilus Milk—Hermes. A whole milk cultured with *B. acidophilus*. It contains not less than 200 million of viable organisms (*B. acidophilus*) per c.c. at the time of sale. For a discussion of the actions, uses and dosage of bacillus acidophilus preparations, see New and Nonofficial Remedies, 1927, p. 216, "Lactic Acid-Producing Organisms and Preparations." Hermes—Groves Dairy Co., Pittsburgh. (Jour. A. M. A., January 14, 1928, p. 117).

Phanodorn.—Cyclobarbitol. Phanodorn differs from barbital (diethyl-barbituric acid) in that one of the ethyl groups of barbital is replaced by a cyclohexenyl group. The actions and uses of phanodorn resemble those of barbital, but it is more than twice as active as barbital and the therapeutic dose is correspondingly smaller. It is eliminated more rapidly than barbital; hence the action is not so lasting. This is an advantage when it is used merely to put one to sleep where sleep will then continue without its further action. It is used mainly for its sedative action. Winthrop Chemical Co., Inc., New York. (Jour. A. M. A., January 14, 1928, p. 117).

Sterile Solution of Dextrose (d—Glucose) 50 c.c. Double End Vial. Each vial contains Dextrose, U. S. P., 25 Gm.; cresol, 0.1 per cent; distilled water, to make 50 c.c.; buffered with dibasic sodium phosphate anhydrous and potassium biphosphate anhydrous. H. K. Mulford Co., Philadelphia.

Hexylresorcinol Solution S. T. 37. A solution of hexylresorcinol—S. & D. (New and Nonofficial Remedies, 1927, p. 320), 1 part, in a liquid composed of glycerin 30 per cent and water 70 per cent, 1,000 parts. Sharp & Dohme, Baltimore.

Iletin (Insulin—Lilly) U-100, 10 c.c. Each cubic centimeter contains 100 units of insulin—Lilly (New and Nonofficial Remedies, 1927, p. 198). Eli Lilly & Co., Indianapolis. (Jour. A. M. A., January 28, 1928, p. 293).

PROPAGANDA FOR REFORM

Vaccine Treatment for Infections of Upper Respiratory Tract.—Upper respiratory infections, acute or chronic, are due to bacterial infection, usually of a mixed type. Various organisms, as the pneumococcus, streptococcus, staphylococcus, influenza bacillus and *Micrococcus catarrhalis*, may be demonstrated as normal inhabitants in the nasopharyngeal secretions of healthy persons. During seasonal variations or epidemics, some particular variety or group may predominate, particularly some type of the pneumococcus or the influenza bacillus. Bacteriologic examination in the upper respiratory infections does not reveal one specific organism as several varieties are present, perhaps some one predominating, depending on circumstances. The presence or absence of symptoms interpreted as disease depends mainly on the virulence of the infecting organisms present and the resistance of the individual. It is the latter factor that vaccine therapy is supposed to assist. The results of such treatment must be determined by immunity tests or by clinical results. Advocates of vaccine therapy, either autogenous or stock vaccine, are not able to advance laboratory proof that is convincing, but prefer to depend on the clinical data, which is notoriously uncertain. Colds, coryza, upper respiratory infections and the like may respond so promptly to the usual drug therapy or even to no treatment whatever that it is impossible and unfair to make the clinical results a basis of proof for the justification of vaccine therapy. (Jour. A. M. A., November 12, 1927, p. 1713).

Broadcasting Buncombe.—In the not very distant past, the quack and the faddist had the entrée—at advertising rates—to the majority of the newspapers of the country, and thus was made the point of contact between sucker and suckee. Today the majority of newspapers of wide circulation do not cater to the business of the medical faddist or the quack. With that avenue closed, it was but natural that radio advertising should be taken up. Broadcasting in the United States is a commercial venture. Generally speaking, the broadcasting station is out to sell time on the air. It is natural, therefore, that these stations should look with favor on any commercial organization that is willing to pay the price the station asks for puffing its particular line of goods. Thus it is that the radio fans have their ears assailed almost nightly with some pseudomedical fad, or the exploitation of some crude piece of quackery. One of the earliest entrants into this field was the "Palmer School of Chiropractic," which has its own broadcasting station, WOC, at Davenport, Iowa. Then there is that enterprising quack who specialized on "rejuvenation" operations and who owns and operates KFKB. Station WHT some

months ago was broadcasting with great regularity the alleged virtues of a "patent medicine," Salicon. WJAZ, not so long since, was telling the radio world the marvels of that ingenious fakir, Professor Scholder. Over KTNT, of Muscatine, Iowa, comes the story of the "Tangle Institute," which has a sure-fire cure for varicose veins. WJBT of Chicago has described, via the ether, the marvels and virtues of the magic horse collar, the "I-on-a-co." The Voice of Labor—WCFL—permits Dr. Percy Lemon Clark, of Chicago, to broadcast health misinformation. Over this same station—WCFL—comes also the "Restoro," a base imitation of Wilshire's magic horse collar. (Jour. A. M. A., November 19, 1927, p. 1786).

The Medical Profession and Cosmetics.—The American Druggist, which, according to newspaper reports, has been added to the series of publications owned and controlled by the International Publications, Inc., of which William Randolph Hearst is president, contains an article by one Alice (Hyphen) Esther Garvin, who, apparently has developed the quaint notion that the American Medical Association is endeavoring to secure legislation which will make it necessary for druggists to sell cosmetic preparations only on prescription. This extravagant straw man the lady then devastates with ridicule. The American Medical Association is holding strictly to its policy of protection of the public in all matters related to health, asking only that the presence of dangerous ingredients in the few cosmetic preparations that contain them be so indicated as to give the public the opportunity of knowing what risks it may run in using them. (Jour. A. M. A., November 19, 1927, p. 1787).

Horace D. Reynolds—Quack.—Ohio papers of October 26, 1927, reported that Horace D. Reynolds, of Cleveland, was being held without bond when two victims died and four others became seriously ill following the administration of Reynolds' so-called serum. Reynolds and those associated with him have operated quack offices in various large cities—Chicago, Cleveland, Pittsburgh, Buffalo, Detroit, etc.—that are described as "Research Laboratories." In Chicago Reynolds' concern was known as the "State Research Laboratories." This laboratory, which has been known as the "Blood Cell Serum Laboratory," flourished until the *Chicago Tribune* exposed the Reynolds quackery and practically drove it from the city. (Jour. A. M. A., November 19, 1927, p. 1801.)

Diet for Pernicious Anemia.—The essential feature of the Minot and Murphy liver diet in pernicious anemia is the administration daily of about 200 Gm. of cooked weight of mammalian liver. This is combined with generous amounts of fruits and vegetables, containing from 5 to 10 per cent of carbohydrate, and red muscle meat. A reading of the work of Minot and Murphy leaves the impression that diet is more or less specific in pernicious anemia and only adjunct in secondary anemia. (Jour. A. M. A., November 19, 1927, p. 1803).

Pyridium.—Pyridium appears to have been originated by one Professor Ostromislenski, who came from Russia several years ago to give America the benefit of his researches. In a circular issued by Merck & Co., the preparation is said to be "a colloidal condensation product of Phenyl-Azo-Diamino-Pyridine Hydrochloride as prepared by Prof. Ostromislenski" and it is recommended in the treatment of "Genito-Urinary Infections especially Gonorrhea." Apparently the only evidence for the value of Pyridium is contained in a book by Ostromislenski. Merck & Co. has not presented the product to the Council on Pharmacy and Chemistry for determination of

its acceptability for New and Non-official Remedies. (Jour. A. M. A., November 19, 1927, p. 1803).

Seeqit.—This is an analgesic tablet put on the market by a concern known as Laboratories JAQ, Inc., of New York City. The method of introducing this nostrum is unusual. Instead of advertising the product in the newspapers and placing it on the shelves of the drug stores, Laboratories JAQ, Inc., circularize women's colleges and such large industrial concerns as employ many women. Seeqit is described as "the great industrial tablet which will create 100 per cent efficiency and bring health and happiness to your women workers." The A. M. A. Chemical Laboratory analyzed Seeqit and concluded that each tablet consists essentially of 0.2 Gm. (approximately 3¾ grains) of amidopyrine (Pyramidon) and 0.07 Gm. (approximately 1 grain) of caffeine, with excipients. (Jour. A. M. A., November 26, 1927, p. 1891).

Formula RA-3.—This is a rather obvious piece of quackery. In February, 1926, John R. Willis, director of the concern that puts out RA-3, described the product as a newly discovered, absolutely harmless, fully guaranteed, therapeutic preparation which contains minute quantities of Radium. It was stated that these minute quantities of Radium, "together with important other ingredients," which "medical science has discovered has a peculiar power of clearing the brain, toning up the entire system, nerves, muscles, organs, bringing about a healthy buoyance and vigor that makes you feel like a new man." In July, 1926, Mr. Willis described the product as a preparation containing "all the important constituents of the outsides of the grains and vegetables. . . ." (Jour. A. M. A., November 26, 1927, p. 1893).

Auto-Hemic Therapy.—One of the ventures of L. D. Rogers is his "Auto-Hemic Serum", with its inevitable "National Society of Auto-Hemic Practitioners". According to Rogers, Auto-Hemic Therapy "consists in giving the patient a solution made by attenuating, hemolizing, incubating and potentizing a few drops of his or her own blood, and administering it according to a refined technic developed by" L. D. Rogers. Those interested can, by sending Rogers "\$100 cash in advance", get a mail-order course on this marvel. (Jour. A. M. A., November 26, 1927, p. 1893).

Magic Materia Medica.—This is put on the market by one C. E. Krueger. He claims to be a chemist and states that, so far, he has "not been able to learn what this healing substance is," but emphasizes that his preparation contains just enough radium to be effective. Mr. Krueger has high and lofty ideas regarding its therapeutic value. He claims that Magic Materia Medica has "cured cataract," is "an excellent eye wash," is good for catarrh and hay-fever, and to have cured rheumatism, neuralgia, lumbago, eczema, diphtheria, pleurisy, goiter, boils, pimples, stomach, intestinal and kidney trouble, and is even claimed to cure cancer. The A. M. A. Chemical Laboratory reports that from analysis it is concluded that "Magic Materia Medica" is essentially a 10 per cent solution of a mixture of approximately equal weights of anhydrous calcium nitrate and anhydrous calcium chloride, plus a very small amount of sodium iodide. (Jour. A. M. A., December 3, 1927, p. 1933).

The Viavi Fake.—For years there has been exploited throughout the United States a piece of quackery known as "Viavi." The business was founded by two brothers, Messrs. H. and H. E. Law, San Francisco. Viavi is not the name of a single preparation; it is a generic name given to a long

list of nostrums put out by the Viavi Company. Practically all of the preparations are sold for the alleged alleviation and cure of diseases peculiar to women. The basis of most of the Viavi preparations seems to be golden seal. Some years ago the *California State Journal of Medicine* published a detailed exposé of the Viavi quackery. In general Viavi had not been advertised to any extent in newspapers. However, immediately Viavi advertisements appeared in all the San Francisco papers and no further newspaper criticism appeared. A physician reports the case of a woman with unmistakable evidence of cervical carcinoma of several months' standing. The history of the case was that the young woman, some four months previously, instead of going to the family physician, fell into the hands of the local Viavi agent. Finally the Viavi people told the woman she had cancer and recommended that the sufferer go to Detroit and take the Koch treatment! Before the poor woman could decide what to do, the lesion ulcerated into an artery. The family physician writes: "Four months ago there might have been a chance to save the life of this young mother; today, the case is practically hopeless." (*Jour. A. M. A.*, December 3, 1927, p. 1983).

Monahato, Another Lead and Sulphur Hair Dye.—"Monahato" is put on the market by the Moulton Products Co., Lombard, Ill. It is described as the "original, natural hair tonic." Contrary to the claims on the package, Monahato is *not* a "natural hair tonic"; it is *not* "a genuine herb compound," and it *does* "rely upon harmful chemicals" for the property it has of dyeing the hair. Although the carton declares, by inference, that Monahato contains no lead salts or sulphur, analysis of the preparation in the A. M. A. Chemical Laboratory disclosed the fact that it contains both. In other words, Monahato is essentially a hair dye of the lead-salts and sulphur type. (*Jour. A. M. A.*, December 10, 1927, p. 2059).

Miracle Pyorrhea Powder.—"Let us save your teeth! We can do it! No matter how soft or how spongy and bleeding the gums may be, or the teeth so loose it seems you could pick them out with the fingers, the Miracle Pyorrhea Powder will make them hard and firm again." These were some of the claims made by the Miracle Remedy Co., of Detroit, for its product "Miracle Pyorrhea Powder." Analysis seems to show that the preparation is essentially a mixture of baking soda and borax, or possibly boric acid, to which has been added a very small amount of aromatic oil. Some miracle! (*Jour. A. M. A.*, December 10, 1927, p. 2059).

Golden Glint—If we are to believe the advertising material that comes with the trade package, Golden Glint (J. W. Kobi Co., Seattle, Washington), "is a specialist's preparation for harmlessly beautifying the hair." There is also a "Golden Glint Shampoo." From an examination made in the A. M. A. Chemical Laboratory, it appears that Golden Glint is essentially a mixture of aniline dyes, such as methyl violet (used in indelible pencils), and Bismarck brown, with excipients. (*Jour. A. M. A.*, December 10, 1927, p. 2059).

Knox-Tartar.—This is a preparation of A. W. Knox, Los Angeles, sold for cleaning the teeth. The carton declares that the product contains "no acid" and "no pumice." From an examination made in the A. M. A. Chemical Laboratory, the product appears to be essentially an abrasive (kieselguhr), to which has been added a very small amount of starch. (*Jour. A. M. A.*, December 10, 1927, p. 2059).

Book Announcements

Troubles We Don't Talk About! By J. F. MONTAGUE, M. D., F. A. C. S., of the University and Bellevue Hospital Medical College; Lecturer on Rectal Pathology, etc. Philadelphia, London, Chicago, Montreal. J. B. Lippincott Company. Octavo of 248 pages. Illustrated. Cloth. Price, \$2.00.

Crawford W. Long and the Discovery of Ether Anesthesia. By FRANCES LONG TAYLOR, with a Foreword by FRANCIS R. PACKARD, M. D. Paul B. Hoeber, Inc., New York. 1928. Octavo of 237 pages with 8 full-page plates. Cloth. Price, \$4.00.

The Peaks of Medical History. An Outline of the Evolution of Medicine for the Use of Medical Students and Practitioners. By CHARLES L. DANA, A. M., M. D., LL.D., Professor of Nervous Diseases, Cornell University Medical College; Ex-President of the New York Academy of Medicine. SECOND EDITION. Paul B. Hoeber, Inc., New York. 1928. Octavo of 105 pages. Illustrated with 43 full-page plates and 16 text illustrations. Cloth. Price, \$3.00.

The Mechanics of the Digestive Tract. An Introduction to Gastroenterology. By WALTER C. ALVAREZ, M. D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation). SECOND EDITION. Paul B. Hoeber, Inc. 1928. Octavo of 447 pages, with 100 illustrations. Cloth. Price, \$7.50.

The Current Significance of the Word Alum. By WILLIAM D. RICHARDSON, Former Editor, Industrial and Engineering Chemistry, etc. With References to the Literature. Published by The Commonwealth Press, Chicago, U. S. A. 1927. 12mo of 93 pages. Cloth. Price, \$1.00 net.

A Monograph Covering the Origin, History and Significance of the Term Castile Soap. Together with a Discussion of the Properties, Uses, Reputation, Adulteration, and Imitation of the Product: Based upon over 900 Extracts from the Literature of 400 Years. By R. W. MITCHELL, Ph. D., Chemist to Lockwood Brackets Co., Boston. 1927. Paper.

Methods and Problems of Medical Education. (Eighth Series). By Division of Medical Education, The Rockefeller Foundation, 61 Broadway, New York, N. Y., U. S. A. 1927. Quarto of 372 pages. Paper.

Safeguarded Thyroidectomy and Thyroid Surgery. A Manual Designed as a Practical Guide for the General Surgeon. By CHARLES CONRAD MILLER, M. D., Philadelphia. F. A. Davis Company, Publishers. 1928. Octavo of 261 pages. Illustrated. Cloth. Price, \$3.75 net.

Handbook on Diet. By EUGENE E. MARCOVICI, M. D., Formerly Assistant to Professor von Noorden in Vienna; Instructor, Post-Graduate Hospital, New York, etc. Philadelphia. F. A. Davis Company, Publishers. 1928. Octavo of 323 pages. Cloth. Price, \$3.50 net.

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Editorial

Since the following editorial was written, the bill to re-enact our present Medical Practice Act has been passed out of the House of Delegates successfully on all of its readings, and has been reported out favorably by the Senate Committee on General Laws. It will now come up for consideration on the floor of the Senate.

Medical Legislation.

At the present session of the Virginia Legislature, the public policy and public health committee of the Medical Society of Virginia, acting jointly with the legislative committee of the State Medical Examining Board, undertook four major objectives and at the present time has apparently accomplished all that could be desired under the circumstances.

The unlicensed chiropractors introduced a bill which had for its purpose the creation of a chiropractor board and other conditions pertaining thereto. The committee on general laws of the House of Delegates, on January 27th, by a vote of 12 to 1 refused to report the bill out of the committee, which means its defeat.

A bill introduced in the Senate by our committee to repeal the DeCollard poropath bill, enacted during the session of 1918, was favorably considered by the Senate committee, passed by the Senate and has been read for the second time before the House, and passed on for the third reading by a vote

of 82 to 6. This infamous poropath act will now be removed from the statutes of Virginia.

Another bill introduced by our committee, to prohibit the operating of a "diploma mill," or the practicing of any one who is a graduate from a "diploma mill," is now being held up by the committee's request.

Acting upon the authority of the society at the Petersburg meeting, our committee also introduced a bill to re-enact the present medical laws. The entire bill was rearranged, though not changed in substance, and is now on the calendar of the House for the second reading, after having been recommended by the committee on general laws with a vote of 12 to 1. This bill puts all persons who practice the "art of healing" on the same basis, before the medical examining board, and is satisfactory to the homeopaths, osteopaths, chiroprodists and optometrists, as well as the Christian Science healers. The chiropractors, who were legalized by the acts of 1916, are not disturbed in any way, except in the sense of being required to conform to the state health laws and to the standard ethics on advertising. Of course no recognition is made of the chiropractors who began practicing after January 1, 1913. There are about 72 of these, and 17 legalized chiropractors. Both of these groups have combined, have employed an attorney and are exercising every effort to defeat our bill.

The Society's committee has had a very strenuous existence ever since the General Assembly convened in combating the situations developed by the chiropractors. Strange as it may seem, some of our representatives are most energetic in their behalf. There has been a general lack of interest on the part of the rank and file of the profession throughout the state, which has thrown the entire responsibility on the shoulders of the committee, and even when called upon by telegram, a number of prominent physicians have not seemed to know what the committee was endeavoring to do.

It is almost impossible for the committee, who are strangers to a large number of the representatives, to satisfy any particular member of the General Assembly, when the latter's own physician has not taken the trouble to inform him as to the menace of drugless healers, who have persistently lobbied against

all the rules, against the State Board of Health, toxin-antitoxin, vaccination, the conception of germ diseases and everything else that is in opposition to their monetary gain.

In the next issue we hope to report that the re-enactment bill will have passed so that in the future when there are any violations of the law the statute as now written will be clear and prosecution can be secured.

A report on medical legislation now pending suggests reference to an allied activity of the Society, namely, the medical defense department, concerning the operation of which there seems to be a good deal of confusion in the minds of many physicians.

By action of the Society at its 1921 meeting, this department was inaugurated in 1922. It was left optional with the members whether they would pay the dollar additional to their dues, thereby enjoying the protection. The following year, since there was general confusion regarding the dollar additional, it was determined to make the fee compulsory, so that all members in good standing now automatically come under the protection offered by this department.

The plan has resulted most satisfactorily to the members of the Society who have been so unfortunate as to have to call for assistance. The funds have accumulated to an amount which can safely meet the demands that may arise, and it is hoped that at some time in the near future an enlargement on the original plan may be undertaken.

This department does not provide any sums of money that might be allowed in damages, but does pay an attorney to defend a member in a suit. The amount of the attorney's fee has varied from time to time, according to the character of the suit. A member of the medical defense committee, wherever there is a suit instituted, is directed by the chairman of that committee, after notice has been given to the secretary of the society, to investigate the facts in the case and report to the chairman, who in turn instructs the local member of the committee to proceed to secure an attorney to defend the case, and supervise the proceedings throughout.

We have learned with a great deal of surprise, that a large number of the members of the Society do not carry any insurance against

damages in alleged malpractice suits, which happens to be the situation in a case pending at the present time. It is suggested that all members of the Society hereafter fortify themselves with such a policy. Where a member does have this protection our attorney and the attorney for the insurance company work in conjunction, which is an advantage to all parties concerned, and should the member have an unfavorable decision, the insurance company not only pays the attorney fee, but also the amount which is allowed. This protection can be obtained at very small cost and the necessity for it is strikingly illustrated by the fact that for some unknown reason, a greater number of suits are instituted against physicians now than formerly.

L. T. P.

News Notes

Campaign for the Early Diagnosis of Tuberculosis.

A nation-wide campaign for the early diagnosis of tuberculosis is being conducted during March and April by the National and State Tuberculosis Associations. The object of the campaign is to teach the public the early danger signals of tuberculosis, those stressed being: Too easily tired, loss of weight, indigestion, cough that hangs on, and the advice given is to "let your doctor decide."

This is a campaign of co-operation between the Tuberculosis Associations and the medical profession, and has the official endorsement of the American Medical Association and the American Public Health Association.

The Virginia Tuberculosis Association and the various local associations in the state will carry on an extensive educational campaign and the hearty co-operation of the medical profession is desired in this effort to get people to consult their family physicians in order that tuberculosis may be discovered in its early, curable stage.

A medical film on the early diagnosis of tuberculosis has been prepared and will be shown *gratis* by the Virginia Tuberculosis Association. County and district medical societies will find that this is a film which will add to the interest of their programs and may obtain its use upon application to the Virginia

Tuberculosis Association, 511 Atlantic Life Building, Richmond, Va.

Councilor for Second District.

Dr. Walter B. Martin, Norfolk, Va., has been appointed a member of the Executive Council of the Medical Society of Virginia from the Second Congressional District, to fill the vacancy caused by the death of Dr. Israel Brown. This appointment has just been made by our president, Dr. J. W. Preston, in accordance with our By-Laws.

The Southwestern Virginia Medical Society

Is to hold its next semi-annual meeting in Marion, Va., March 29th and 30th, under the presidency of Dr. J. L. Early, of Radford, Va. Invited guests who will present papers on this occasion are Dr. L. T. Royster, University; Dr. Southgate Leigh, Norfolk, and Mr. Charles Stevens, of Baltimore, Md. Dr. R. M. Hoover, Roanoke; Dr. S. H. Nixon, Christiansburg, and Dr. T. R. Bowers, Bristol, will read papers in the symposium. Those presenting voluntary papers will be: Drs. J. F. Armentrout, J. O. Boyd, Frank Helvestine and W. Banks, Huff, of Roanoke; Dr. W. A. Brumfield, of Blacksburg; Drs. L. F. Cosby and H. M. Hayter, of Abingdon; Dr. R. F. Thornhill, of Pulaski, and Dr. Charles F. Graham, of Wytheville.

The Tri-State Medical Association of the Carolinas and Virginia

Held its thirtieth annual session at Cavalier Hotel, Virginia Beach, Va., the middle of February, with a good attendance. Officers elected for the 1929 session are: President, Dr. James K. Hall, Richmond, Va.; Vice-Presidents, Dr. Oren Moore, Charlotte, N. C., Dr. DeWitt Kluttz, Greenville, S. C., and Dr. R. Finley Gayle, Richmond, Va. Dr. James M. Nothington, Charlotte, N. C., was re-elected secretary-treasurer. The new members elected to the Executive Council are: Dr. J. Bolling Jones, Petersburg, Va.; Dr. D. A. Garrison, Gastonia, N. C.; Dr. W. R. Wallace, Chester, S. C.; and Dr. L. G. Beall, Black Mountain, N. C., the latter to take the place of Dr. Douglas Murphy who has moved from the Tri-State territory. Members of the Council who hold over are: Dr. M. H. Wyman, Columbia, S. C.; Dr. Warren T. Vaughan, Richmond, Va.; Dr. E. S. Boice, Rocky Mount, N. C.; Dr. F. B. Johnson, Charleston, S. C.; and Dr. R. L. Payne, Norfolk, Va.

It was decided to hold the next meeting in Greensboro, N. C., and to have some clinical features included in the program.

Annual Graduate Fortnight of the New York Academy of Medicine.

An unusual opportunity to study the degenerative diseases of old age will be given by the New York Academy of Medicine, October 1 to 13, by means of a program of lectures, clinics and courses in hospitals and teaching institutions.

This is to be the first "Annual Graduate Fortnight" of the Academy, inaugurating a form of graduate medical education novel in this country. In October of each year a problem of medicine or surgery of outstanding importance and interest to practising physicians will be selected. The topic for 1928 is described as "The Problem of Aging and Diseases of Old Age."

Not only will the diseases and management of old age be discussed, but attention is to be directed toward the prevention of premature and postponing of normal aging. Diseases of the heart, and affections of blood pressure and kidneys will be studied under the guidance of men of national and international reputation.

By concentrating all the available knowledge and experience on a single problem each year, it is believed the greatest benefit to general practitioners and specialists as well, can be secured. The coming sessions will devote considerable time to pointing out the effect of wrong modes of living. Aging as it relates to health insurance, and to economic and industrial problems, is to be included in the curriculum.

No fees are to be charged for the Fortnight. It is not expected that every physician will feel disposed to attend all of what will be a program of long duration each day. Special courses to be arranged in conjunction with the sessions by medical schools and teaching hospitals may, however, carry a nominal charge for those who attend them.

Sessions are scheduled for morning, afternoon, and evening, with suitable arrangements for physicians from out of the city to have supper served at the Academy between the afternoon and evening sessions.

Dr. James F. Mitchell,

Professor of surgery in George Washington University Medical School, and an ex-president of the Southern Surgical Association, by

invitation addressed the Richmond Academy of Medicine at its meeting on February the 14th.

Dr. Fred F. Oast,

Recently of Catawba Sanatorium, Va., for the next few months will be at Kern County Sanatorium, Kern County, California.

President of N. C. State Board of Health.

Dr. Andrew J. Crowell, of Charlotte, was recently elected president of the North Carolina State Board of Health. He succeeds Dr. J. Howell Way, deceased, who held the position for a number of years.

Clinical Tour of Europe.

The American College of Physical Therapy has arranged for their fellows and interested doctors what might be termed a complete European Review of physical therapy. No less than twenty-one clinics are included in the itinerary. The countries to be visited are England, France, Switzerland, Austria, Germany and Denmark. The party will sail from New York May 26th. The first clinics will be visited in London.

Preliminary lectures have been arranged to be given on board ship en route to Europe. This will enable the doctors who go abroad to obtain a clear conception of what is in store for them on the other side.

Any doctor who is interested in physical therapy is cordially invited by the College to attend these clinics. Headquarters for this tour have been established at 25 Broadway, Suite 656, New York City, New York. Further particulars may be obtained by writing to that address.

Proposed Revision of Washington, D. C., Child-Labor Law.

Soon after the opening of Congress in December, bills were introduced in the House of Representatives and the Senate forbidding all gainful employment of children under 14 years of age in the District of Columbia, except in housework or agricultural work performed outside school hours for the child's parent or legal guardian; providing for an 8-hour day and 48-hour week for employed children between the ages of 14 and 18; improving the provisions of the present law regarding street trading and dangerous occupations; and strengthening the measures for the enforcement of the present child-labor law.

Major Allen J. Black,

Who has been in the Medical Corps of the

U. S. Army for some years and was recently located at Fort Andrews, Mass., has been retired for physical disability incident to the service and has located in Richmond, Va. His home is at 1511 Palmyra Avenue. Major Black has kept up his membership in the Medical Society of Virginia during the whole period of his service in the Army.

Visitors in Richmond.

Dr. William Allan, of Charlotte, N. C., and Dr. E. S. Boice, of Rocky Mount, N. C., were recent visitors in Richmond.

The Virginia Tuberculosis Association

Held its nineteenth annual meeting in Richmond, February the 24th. The executive secretary, Miss Leslie Combs Foster, gave a brief account of the year's work, in which she stated that during the year officials of the Association made 211 visits to Virginia counties and cities, gave thirty-nine public addresses, and called upon 1,000 people on conferences in regard to tuberculosis work. She stated that Hanover, Henrico, Louisa and Chesterfield counties had sent many underweight children to health camps and that 382 children received the benefits of the nutrition program. Local associations sent 478 patients to sanatoria and paid for 605 months' board for those unable to pay. Home aid was given to 1,431 tuberculosis patients.

It was announced at this meeting that the Association would take an active part in the early diagnosis campaign which will be conducted during March and April, in an attempt to locate hidden cases of tuberculosis throughout the state.

Officers named for the ensuing year are: President, Dr. William F. Drewry, Petersburg; vice-presidents, Dr. H. A. Latane, Alexandria, and Mrs. William Gatewood, Newport News; treasurer, Mr. George Call, Richmond; secretary of the board of directors, Dr. Roy K. Flannagan, Richmond.

Polish Children Aid Child Sufferers of Mississippi Flood.

Polish children have contributed two separate gifts of money, totaling nearly \$2,000, through the Junior Red Cross of Poland, to aid the child flood victims of the Mississippi Valley. The Junior Red Cross of Washington says that 130,000 Polish children contributed to the gifts, and that the money is being used in carrying out Junior Red Cross projects for the children of the flood areas.

Dr. and Mrs. George B. Barrow

Returned to their home in Clarksville, Va., the latter part of February, after a visit to Jacksonville and other places of interest in Florida.

Dr. Edmund Horgan

Has returned to his home in Washington, D. C., after an interesting visit to the surgical clinics of London, Berlin, Vienna, Gratz, Genoa, Paris and Brussels.

Dr. Howard Kelly has Another Birthday.

The *Baltimore Sun*, of February the 22nd, paid most fitting tribute to Dr. Howard A. Kelly, of that city, on the occasion of his seventieth birthday, in an editorial under the caption of "One of the Grand Young Men." It says in part:

"Dr. Kelly himself gives us a clearer and better definition of 70 when he says it means merely twice 35. And that's a different matter altogether, because twice 35 means twice as good as once 35. That may not be the case with all men, but it is the case with Dr. Kelly, from whom life has not run away, but to whom it has given fresh endowments of professional wisdom and understanding as birthday gifts with the passage of the years."

Dr. and Mrs. A. G. Brown, Jr., Abroad.

Dr. Alexander G. Brown, Jr., editor of the MONTHLY, and Mrs. Brown, sailed on the *Leviathan*, February the 11th, for a six weeks' visit abroad. While away, they will visit Paris, Florence, Rome, Naples, London and Edinburgh.

Madrid Plans for Health Examinations in Schools.

The Civil Government of Madrid, Spain, has instructed the municipal health officers to examine all school children every three months and to keep records of the physical condition of each child. Reports on the sanitary condition of the school buildings are also required.

Dr. George C. Snead,

Recently of Andover, Va., is now located at Wilder, Va.

Dr. Thomas M. Winn,

Of the class of '22, Medical College of Virginia, and who practiced for a time at Millboro, Va., recently returned from taking post-graduate work at the New York Polyclinic, and has located at Richwood, West Virginia. He is associated with the staff of the McClung Hospital, in that place, and is devoting his

work to diseases of the eye, ear, nose and throat.

The American Social Hygiene Association,

At its annual meeting in January, elected Dr. Edward L. Keyes, of New York City, president, and Dr. Donald R. Hooker, of Baltimore, Md., secretary. Dr. William H. Welch, of Baltimore, is honorary president.

Dr. Frank McCutchan,

Recently connected with the staff of the Gill Memorial Hospital, in Roanoke, Va., has moved to Salisbury, N. C., where he is associated with Dr. R. V. Brawley in the practice of oto-laryngology.

Dr. A. M. Showalter,

Christiansburg, Va., was elected grand junior warden of the Grand Lodge of Virginia, A. F. & A. M., at its 150th convention in Richmond, Va., the middle of February.

Married.

Dr. William H. Baughman, formerly of Richmond, Va., but now of Oakland, Calif., and Miss Dorothy Kent, of Mt. Vernon, N. Y., January 23, 1928. They are spending their honeymoon in Honolulu. Dr. Baughman is a graduate of the University of Virginia Department of Medicine in the class of '10.

Regulation of Child Labor in Shanghai.

Through the influence of the Joint Committee of Shanghai Women's Organizations, which was formed in 1921, a commission was appointed by the Shanghai Municipal Council to investigate child-labor conditions in the city and make recommendations for action. The commission published its report in 1924, and an unsuccessful effort was made to secure a by-law enabling the council to regulate the employment of children. The joint committee has now established a permanent organization including representatives of British, American, Chinese, Japanese and Portuguese women's clubs, and one of its aims is "to promote the welfare of women and children of all nationals in Shanghai."

Dr. R. D. Garcin,

Richmond, Va., was re-elected one of the directors of the Bank of Commerce and Trusts of this city, for 1928.

The Leslie Dana Medal.

The fourth award of the Leslie Dana Medal, presented annually through the Missouri Association for the Blind to the person selected from the nominations received by the National Society for the Prevention of Blindness, will

take place during the 1928 meeting of the American Academy of Ophthalmology and Otolaryngology, in St. Louis, Missouri.

Nominations will be received by the National Society for the Prevention of Blindness, together with detailed information prompting the nomination, until the 15th day of May, 1928. The medical profession and ophthalmological societies are invited to submit names of persons deemed worthy of this honor to the National Society, under the conditions set forth in the deed of gift, as follows:

- a. Long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight.
- b. Research and instruction in ophthalmology and allied subjects.
- c. Social service for the control of eye diseases.
- d. Special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision.

The recipient of the first medal awarded (1925) was Dr. Edward Jackson, of Denver. The second annual award (1926) was to the late Miss Louisa Lee Schuyler, of New York City, and the third award (1927) was to Dr. Lucien Howe, until recently of Buffalo, now of Cambridge.

Budapest International Medical Congress.

The Seventh International Medical Congress for Industrial Accidents and Occupational Diseases is definitely announced to be held in Budapest, Hungary, September 2-8, 1928. National committees have been formed in the principal countries.

Since the first American announcement, Dr. Fred H. Albee, New York City, and Dr. Emery R. Hayhurst, Ohio State University, Columbus, both members of the Permanent International Committee, have been appointed Joint Chairmen of the National Committee for the United States, and have appointed Dr. Richard Kovacs, New York City, as Secretary.

The Travel Study Club of American Physicians, of which Dr. Albee is President and Dr. Kovacs, Secretary, has rearranged its summer trip for 1928 especially to focus upon the Budapest Congress. Those who have already indicated their intention of attending the Congress and others are invited to join the Travel Study Club either for the entire trip or at

any point. The itinerary calls for sailing from New York on August 16th. Clinics on the continent will be visited before and after the Budapest Congress. Returning, the party will reach New York on October 5th.

Correspondence regarding the trip should be had with Dr. Richard Kovacs, 223 E. 68th St., New York City.

Dr. W. C. Rosser,

For some time of Rustburg, Va., has moved to Lynchburg, Va., and has located at 210 Yeardley Avenue, that city.

Preparing for May Day

May Day isn't very far off, and the American Child Health Association of New York City has already issued a little book—The Goal of May Day, A Year-round Community Child Health Program—which contains suggestions for promoting child health through the home, the school, the church, and community organizations.

Dr. A. Ludwell Hammer,

McGaheysville, Va., of the class of '05, University College of Medicine, Richmond, Va., is now much improved after an illness of several months. Dr. Hammer was confined to his bed for some time with phlebitis of the left leg.

Dr. Susan W. Field,

For several years resident physician at State Teachers' College in Farmville, Va., is on a leave of absence on account of her health and has been visiting at her former home in Lincoln, Nebraska.

Dr. Susan A. Price, recently of the staff of the Eastern State Hospital at Williamsburg, has been filling Dr. Fields place in Farmville since the opening of school last Fall.

Dr. Edwin R. Mickle,

Of the class of '23, Medical College of Virginia, and recently of Phoebus, Va., has moved to Williamsburg, Va., where he is an assistant physician at the Eastern State Hospital.

A Campaign Against Blindness.

The National Committee for the Prevention of Blindness is planning a general campaign against the major causes of blindness. It will continue its efforts to wipe out ophthalmia neonatorum, the most prolific single cause, for there are still 19 States and 2 Territories without adequate regulations concerning the use of a prophylactic in the eyes of the new-born. It proposes a nation-wide examination of the

eyes of pre-school children, a new technique having been demonstrated in 35 cities last year; a project for the conservation of the eyes of school children; research into the causes of and methods of eradicating trachoma; and co-operation with national industrial and public-health organizations in reduction of eye hazards in industrial occupations and from the social diseases.

Generous Gift to Children's Hospital in Cincinnati.

The president of the Board of Trustees of the Children's Hospital of Cincinnati, William C. Proctor, has given \$2,500,000 to the institution, to be used for pediatric investigation and teaching. About \$500,000 is to be used for building a research laboratory and for the development of an outpatient clinic.

State Colony for Epileptics and Feeble-minded.

The eighteenth annual report of the Colony, of which Dr. John H. Bell is superintendent, stated that the general health of the population was good for the year ended June 30, 1927. There were no epidemics and the death rate was remarkably low. The large majority of patients enjoy outdoor privileges in good weather. At the beginning of the year covered by this report there were 767 patients in the institution buildings and 83 on furlough. At the end of that year, there were 798 patients with 67 on furlough, the total number on the register being 865. It is stated that the greatest congestion and demand for additional quarters at this time is felt in the male department and it is stated that an appropriation is necessary for the erection of a male dormitory.

Matriculate for Post-Graduate Course.

Among those who have matriculated for the Post-Graduate course to be given at Gill Memorial Hospital, Roanoke, Va., March 19-24, inclusive, are: Dr. L. W. Hovis, Charlotte, N. C.; Dr. J. R. Perkins, Winston-Salem, N. C.; Dr. A. T. Finch, Chase City, Va.; Dr. C. E. Crosby, Greenwood, S. C.; Drs. Simmons R. Lucas and Marion R. Mobley, Florence, S. C.; Dr. R. W. Petrie, Lenoir, N. C.; Dr. Martin Crook, Spartanburg, S. C.; Dr. C. H. McArthur, Rome, Ga.; Dr. James P. Edmonds, Middleboro, Ky.; Dr. A. T. Hawthorne, Winchester, Va.; Dr. A. J. Ellington, Burlington, N. C.; Dr. J. R. Vermillion, Princeton, W. Va.; Dr. E. Vermillion, Welch,

W. Va.; Dr. G. E. Campbell, Johnson City, Tenn.; Dr. Karl S. Blackwell, Richmond, Va.; Dr. C. T. St. Clair, Bluefield, W. Va.; Dr. H. C. Wolfe, Greensboro, N. C.; Dr. G. B. Dudley, Martinsville, Va.; and Dr. N. Overby, Sandersville, Ga.

Dr. E. C. Levy

Former Health Officer and Director of Public Welfare of Richmond, Va., but for the past two years City Health Officer at Tampa, Fla., no longer has that position, as the new charter which went into effect in January, required the City Health Officer to be "a physician authorized to engage in the practice of medicine under the laws of the State of Florida." We understand that the Hillsborough County Medical Society protested against this clause which made Dr. Levy ineligible to office, as he had not taken the Medical Examining Board of the State of Florida. He was succeeded by Dr. C. W. Bartlett, a practising physician.

Dr. Levy advises us that he has made no definite plans as yet, but will probably return to Richmond for a time.

Dr. Ramon M. Suarez,

Of Santurce, P. R., of the class of '17, Medical College of Virginia, has been appointed to represent his alma mater at the twenty-fifth anniversary of the University of Porto Rico, to be held this month. Dr. Suarez has recently been elected president of the Porto Rico Medical Association and has also been appointed associate professor of medicine at the School of Tropical Medicine of the University of Porto Rico and Columbia University.

Campaign Against the "Common Cold".

A gift of \$195,000 by the Chemical Foundation to the School of Hygiene and Public Health of Johns Hopkins University is to be devoted to an exhaustive study of "the origin, nature, and possible cure of the common cold." The school has already made some investigations of the causes of colds.

Dr. Akers Honored on Birthday.

When Dr. R. T. Akers, of Alum Ridge, Va., celebrated his sixty-ninth birthday recently, his friends in Floyd and adjoining counties took occasion to honor him with a birthday dinner and a sort of "love feast". He was the recipient of many good wishes and gifts and

his friends arranged an interesting program of music and speech making in addition to a birthday dinner.

Memorial to Dr. Howard Fletcher.

A tall clock with chimes has been presented to the Fauquier Hospital at Warrenton, Va., as a memorial to the late Dr. Howard Fletcher, of that place, and has been placed in the hall of the hospital. This was given by Dr. Fletcher's friends in the Medical Society of Northern Virginia, Maryland and the District of Columbia, of which Dr. Fletcher was a president. Dr. Fletcher was exceedingly interested in the founding of this hospital and died suddenly the day before its formal opening.

Recommendations with Regard to the Medical College of Virginia.

The survey report on higher education in Virginia recently submitted to the Governor includes these recommendations among others in specific relation to the Medical College of Virginia, Richmond: that funds be provided to increase salaries approximately twenty per cent, to make possible more ample extension service, to supply a new laboratory for chemistry, pathology, and bacteriology and a building for clinical dentistry, and to develop research more generously. It also recommends that the college take over the State public health laboratory as now maintained by the State Board of Health and that the school of nursing be developed more generously on the side of pediatrics and obstetrics to make possible more affiliations in these subjects with the smaller hospitals in the State. There are other recommendations of a more general character.

Deaths of Physicians.

The Journal of the A. M. A. states that during 1927 it published obituaries of 2,790 physicians of the United States, including ten who were temporarily absent from the country or resided in Alaska, Hawaii or Porto Rico. The average age of these physicians was 62 years. Ninety-one physicians lived to be 85 or more years of age and one lived to 102. The largest number of deaths for a five-year age group was by a slight margin for the period of 65-69 years, there being 389 in this group. The largest number of deaths among physicians occurred in March. There were one hundred and forty deaths of physicians reported as the re-

sult of accidents, sixty-six of these being due to automobile accidents.

The Newsboys' Trial Board of Boston.

In 1910 the school committee of Boston established the newsboys' trial board, a unique feature for controlling violations of the law concerning newsboys. This board consists of the supervisor of licensed minors, who acts as prosecuting attorney; one of the school attendance officers, who acts as presiding judge; and three newsboy judges, elected from the licensed newsboys attending the city public schools. Each newsboy judge usually speaks another language in addition to English and can act as interpreter at need. Boys found violating the law are required to report to this board with their parents. A first offender usually has the law explained to him and he and his father are warned. A repeated offender is likely to be referred to juvenile court.

How Many Children Go to the "Movies"?

Children formed over a fourth of the total paid admissions to a few motion-picture theaters in one city during 1926 which meant a weekly average attendance of 4,600 and a yearly total of 241,762. A recent estimate placed the proportion of children in the motion-picture audiences of New York at 8 per cent. This is considered a low figure for the country as a whole. Using it as a basis, of the total weekly attendance of 90,000,000 reported by a spokesman of the industry 7,200,000 are children.

Health of 2,000 Continuation-School Boys in New York.

Of 2,000 working boys, 15, 16, and 17 years of age attending the East Side Continuation-School, New York, only 225 were found to be without serious defects in an examination sponsored by the New York Tuberculosis and Health Association. About half the boys had diseased tonsils or decayed teeth, or both; over one-fourth were suffering from defective vision, in a few cases corrected by glasses; malnutrition, nasal obstructions and infections, and heart defects were found in considerable numbers; and there were 74 boys with lung defects or diseases, including 6 with active tuberculosis and 31 tuberculosis suspects.

Dr. D. Hunter Marrow,

Of Union Level, Va., has been spending the winter at Daytona Beach, Fla., as is his custom.

Dr. John Phipps,

Of Fries, Va., who was operated on recently for appendicitis at the Galax, Va., Hospital, was reported as doing well as we went to press.

For Sale—

The following equipment of the late Dr. E. H. Heaton: Large Fisher cabinet—latest type machine; Morse wave generator; deep therapy lamp; and galvanic battery outfit. All are in perfect condition, having been used only one year. Will sell for half price. Address Mrs. E. H. Heaton, Leesburg, Va. (*Adv.*)

Obituary

Dr. Israel Brown,

Norfolk, Va., prominent member of the Medical Society of Virginia, and of the American Legion, was found dead in bed on February the 11th, at Charlottesville, Va., to which place he had gone to attend a meeting of post commanders and adjutants of the American Legion, of which he was State Commander. Dr. Brown was born in Newberry, S. C., fifty-four years ago. Upon completion of his academic education, he took up the study of medicine and graduated from the Medical College of the State of South Carolina in 1894. Shortly thereafter, he located in Norfolk, and had since made his home there. Dr. Brown had an excellent war record; he served on the Mexican border and, in the World War, went overseas shortly after the United States entered the war. He held the rank of lieutenant-colonel in the Medical Reserve Corps at the time of his death. Dr. Brown was also active in politics and had served his community in the General Assembly of Virginia. He was an ex-president of the Norfolk County Medical Society, the Seaboard Medical Association of Virginia and North Carolina, and, at the time of his death, was a member of the Executive Council of the Medical Society of Virginia, a position which he had held for several years. Dr. Brown was unmarried, but is survived by a brother and three sisters. His funeral was held with full military honors, the last rites being conducted by the Masonic order of which he was a member. Hundreds of friends paid high tribute to him on this occasion.

Dr. Robert Carter Randolph,

Of Boyce, Va., died February the 20th, at his home near that place. His death was unexpected, although he had not been in good health since Christmas. Dr. Randolph was fifty-eight years of age and had graduated in medicine from the former University College of Medicine in Richmond, Va., in 1894. Following this, he served as an interne at St. Luke's Hospital, this city. His wife and a son survive him. Dr. Randolph was president of the Frederick-Clarke County Medical Society at the time of his death. He had been a member of the Medical Society of Virginia for a number of years.

Dr. Frank Waring Lewis,

Of Morattico, Va., died February the 14th, at the home of his son, Dr. F. W. Lewis, Jr., in Richmond, at which place he was visiting. Dr. Lewis was seventy-one years of age and a graduate in medicine from the University of Maryland in 1878. He was a member of the board of visitors of the University of Virginia and was for forty-one years county superintendent of schools in Lancaster County, Virginia. He was a Mason and was at one time a member of the Medical Society of Virginia. His wife and three children survive him.

Dr. Samuel Shugert Adams,

Washington, D. C., for thirty years chief of the department of medicine of Georgetown University School of Medicine, died in that city February the 12th, aged seventy-five years. Death was due to heart disease.

Dr. Eppa Hunton Heaton,

Leesburg, Va., died at his home in that place September 16, 1927, death being due to angina pectoris. He was sixty-one years of age and had lived most of his life in Loudoun County, Virginia. Upon completion of his academic education, he studied medicine at the College of Physicians and Surgeons of New York and later at the University of Maryland, from which he graduated in 1889. Following a stroke of paralysis about twelve years ago, Dr. Heaton gave up general practice and took a post-graduate course in laboratory and X-ray work. He had been in charge of this work at the Loudoun Hospital for the past five years. Dr. Heaton was a member of the Medical Society of Virginia. His wife and six children survive him.

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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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CALCREOSE

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 54, No. 6.
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RICHMOND, VA., SEPTEMBER, 1927

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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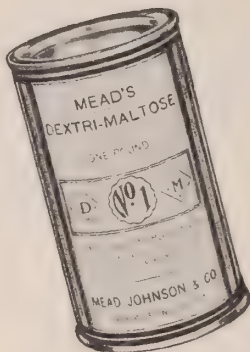
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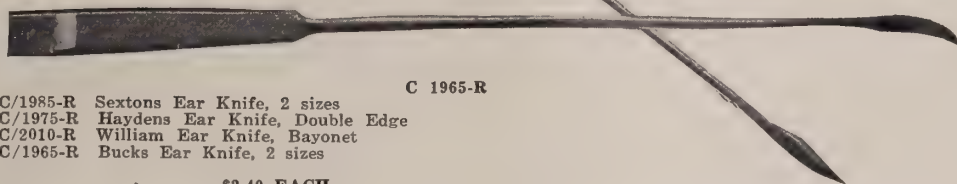
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C 1975-R



C 2010-R



C 1965-R

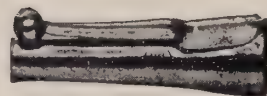
C/1985-R Sextons Ear Knife, 2 sizes
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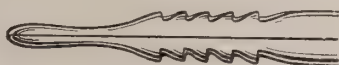
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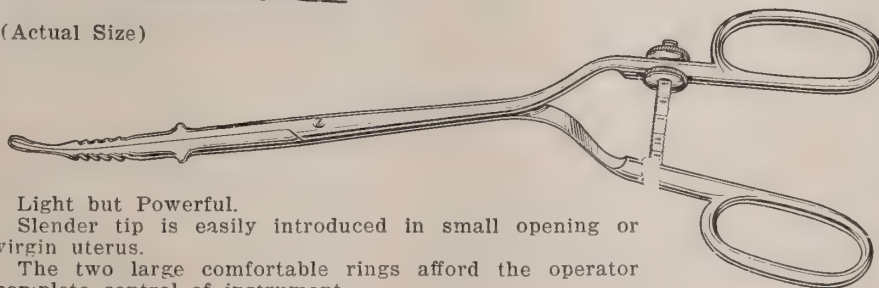
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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 54, No. 9.
WHOLE No. 906.

RICHMOND, VA., DECEMBER, 1927

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Calcreose

A Good Expectorant

CALCREOSE is effective as a stimulant expectorant in the treatment of chronic bronchitis and other bronchial affections, as well as in tuberculosis because it presents the well-known therapeutic effect of creosote in a form that is more agreeable to the patient.

Calcreose can be administered in large doses over long periods of time with little or no disturbing effects on sensitive stomachs. In cases where slight discomfort may be experienced, tolerance is rapidly developed by starting with a small dose and gradually increasing it.

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Product and Policy

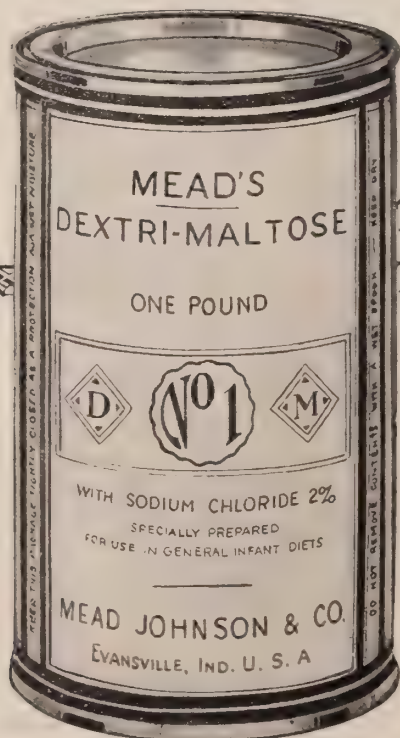
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RESPONSIBILITY in infant feeding necessitates unmolested control of the diet.

That Mead's Dextri-Maltose, cow's milk and water has given good results over a period of years in feeding the majority of infants is due to the policy that entrusts its indication and the control of its use to the doctor alone.

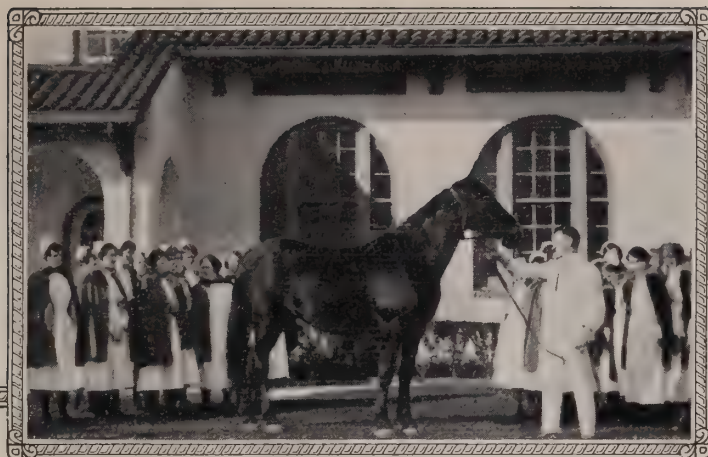
And so it has become known among physicians as a dependable infant diet material to be used in cases where gains in weight are desired, where nutritional disturbances are to be avoided, or where tolerance for sugars has been lowered.

Mead's Dextri-Maltose is the result of a natural conversion, i. e., by the action of the enzymes of pure barley malt upon cereal starch. It is to be used with a natural food, cow's milk diluted with water which can only be prescribed in the proper proportions by the doctor who has a knowledge of the individual infant in his care.



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WHOLE No. 907.

RICHMOND, VA., JANUARY, 1928

\$2.00 A YEAR
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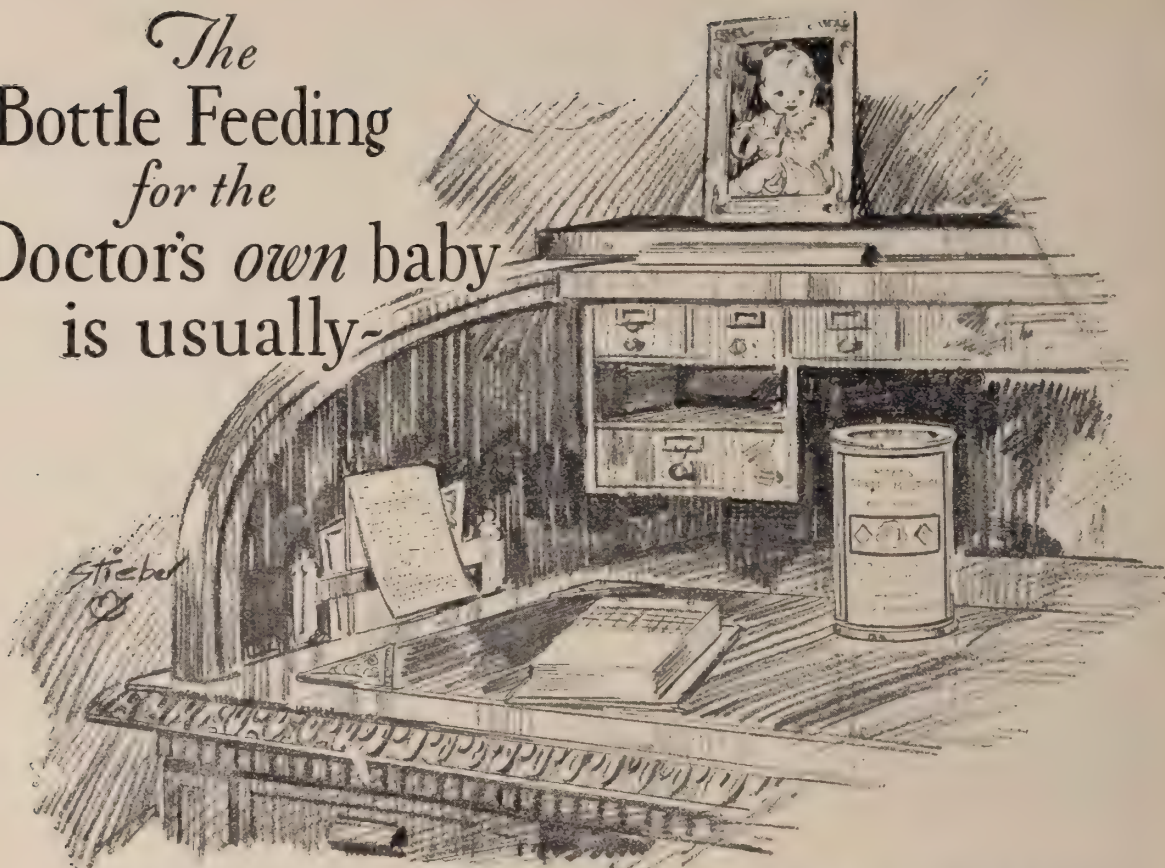
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is usually—



MEAD'S DEXTRI-MALTOSE

COW'S MILK AND WATER

The doctor knows the importance of breast milk in relation to infant feeding. It is "the voice of nature" calling for a healthy, well-nourished infant.

The absence of breast milk constitutes an emergency in the life of every infant. When such an emergency comes to the doctor's own infant, it is significant how many physicians unhesitatingly turn to the best known substitute for breast milk—namely cow's milk, water and Mead's Dextri-Maltose.

That this form of carbohydrate—Dextrins and Maltose—combined with cow's milk and water, gives the best results in infant feeding, is the experience of physicians, whether in general practice or whether this practice is confined to pediatrics exclusively.



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THESE PRODUCTS ARE PREPARED BY THE GILLILAND LABORATORIES AND
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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 54, No. 11.
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RICHMOND, VA., FEBRUARY, 1928

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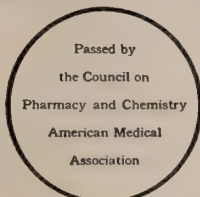
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A RELIABLE cough syrup is a therapeutic necessity.

Compound Syrup of Calcreose will fill this requirement to your satisfaction because —

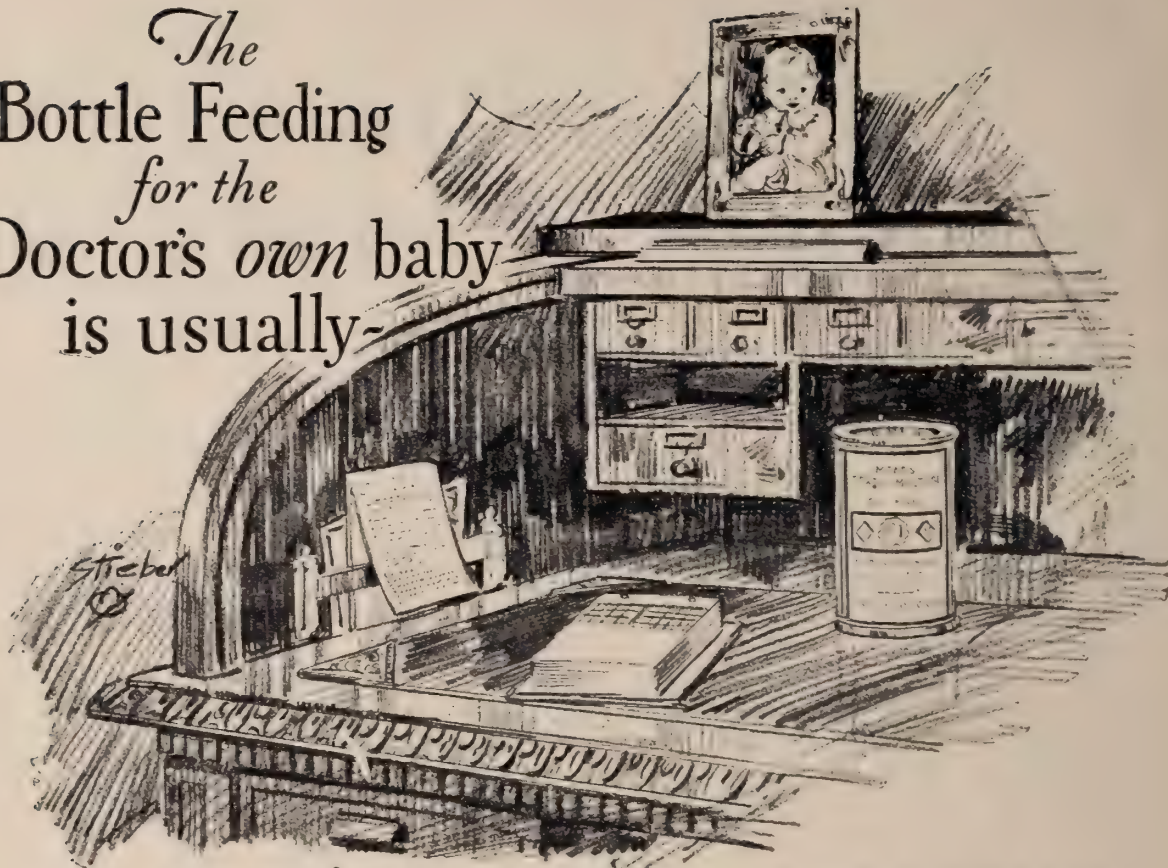
- 1—It contains Calcreose—the well-known Maltbie Compound of creosote and lime which avoids gastric distress.
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- 3—It is a pleasantly flavored syrup—easy to take and quickly effective.

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for the
Doctor's own baby
is usually—



MEAD'S DEXTRI-MALTOSE

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The doctor knows the importance of breast milk in relation to infant feeding. It is "the voice of nature" calling for a healthy, well-nourished infant.

The absence of breast milk constitutes an emergency in the life of every infant. When such an emergency comes to the doctor's own infant, it is significant how many physicians unhesitatingly turn to the best known substitute for breast milk—namely cow's milk, water and Mead's Dextri-Maltose.

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Makers of Infant Diet Materials Exclusively

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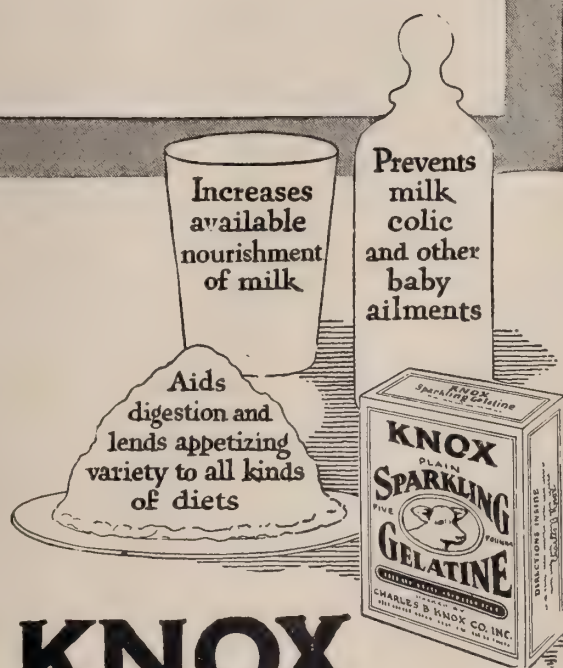
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Here's where Knox Sparkling Gelatine plays an important part. Made plain and pure—having no flavoring, coloring or sugar content—it is an ideal food for the purpose. It combines so deliciously with the fruits, vegetables, chicken and other foods you prescribe for diabetes—it makes them taste *different*—it prevents monotony from defeating the patient's appetite. And furthermore, Knox Gelatine, with its colloidal ability, makes the foods with which it is combined easier to digest—it adds health to the diabetic menu.

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We have literature and recipes, prepared by eminent dietitians, especially for the diabetic diet. May we send these to you? They are being used by many physicians with gratifying success.

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OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 54, No. 12.
WHOLE No. 909.

RICHMOND, VA., MARCH, 1928

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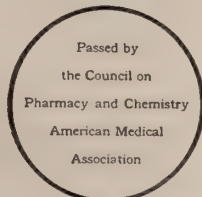
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Compound Syrup of Calcreose



THE MALTBIE CHEMICAL COMPANY

Manufacturers of a Full Line of Pharmaceuticals

NEWARK, N. J.

A RELIABLE cough syrup is a therapeutic necessity.

Compound Syrup of Calcreose will fill this requirement to your satisfaction because —

- 1—It contains Calcreose—the well-known Maltbie Compound of creosote and lime which avoids gastric distress.
- 2—It provides the stimulant expectorant action for which creosote is famous.
- 3—It is a pleasantly flavored syrup—easy to take and quickly effective.

End Results in Infant Feeding

Nutritional disturbances such as Marasmus, Decomposition, Atrophy, Intoxication, etc., are usually *the end results* of mild beginning fermentative diarrhoeas. Fermentative diarrhoeas are in turn the end results of improper carbohydrate in the infant's intestines.

Carbohydrate, a portion of which is not absorbed rapidly enough, is attacked by the acid-forming bacteria which results in a diarrhoea.

This form of nutritional disturbance is often corrected in its early stages by the administration of Mead's Casec (calcium caseinate) the principal protein of cow's milk. This is in accordance with the Finkelstein theory that protein inhibits the growth of the acid-forming organisms.

But as a measure of safety in infant feeding, the use of Mead's Dextri-Maltose in cow's milk and water formulas will do much toward preventing the occurrence of a fermentative diarrhoea. This is because of its greater assimilation limits (7.7 as against 3.1 and 3.6 for lactose and cane sugar respectively).

A carbohydrate so easily assimilated is, when used with cow's milk and water formulas, the greatest assurance against nutritional disturbances caused by sugar intolerances. For this reason it is used with good results in feeding the majority of well infants, and for the same reason it is invariably the clinical indication in cases of infants with weakened powers of digestion,—those manifesting *the end results* of unsuitable carbohydrate additions to their diets.



Samples and Literature
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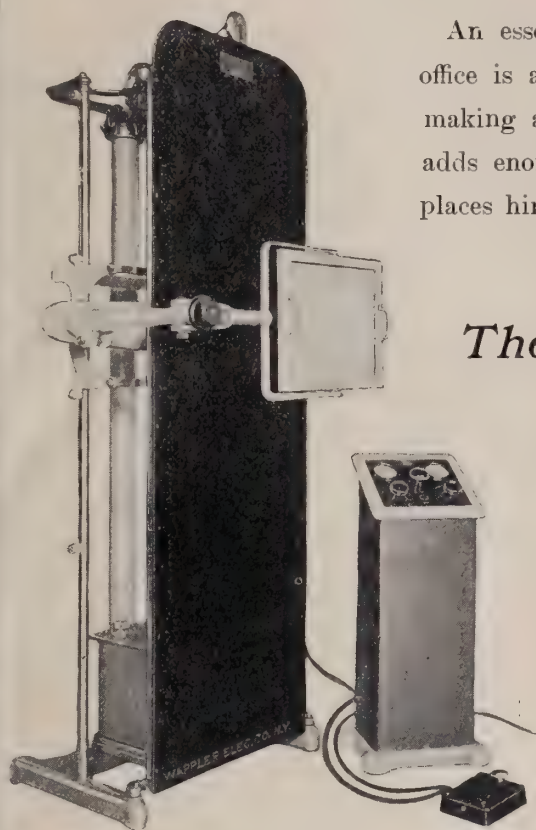
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is universally recognized as the finest and most complete apparatus of its kind available today. A greatly increased demand has made possible a startling reduction in its price. You will be surprised to learn how easy it now is for you to enjoy the advantages of this modern equipment.



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